# Dr. kiloBYTE's creative Popular Personal Recreational MICROCOMPUTER DATA INTERFACE WORLD Journal

April Fools 1980 Premier and Only Issue $2.50

This magazine plugs you in to the wonderful world of small computering.

# he home computer you thought was years away is here.

OHIO SCIENTIFIC COMPUTERS ARE:
HOME CONTROL
TIME OF DAY
ELAPSED TIME
COUNTDOWN TIMER
A.C. CONTROLS
LAMP 1
LAMP 2
LAMP 3
APPLIANCE
CHALLENGER 8P
FLOPPY DISKETTE
CONTROL SYSTEM

## C8P DF $2,597

Ohio Scientific's top of the line personal computer, the C8P DF. This system incorporates the most advanced technology now available in standard configurations and add-on options. The C8P DF has full capabilities as a personal computer, a small business computer, a home monitoring security system and an advanced process controller.

**Personal Computer Features**

The C8P DF features ultra-fast program execution. The standard model is twice as fast as other personal computers such as the Apple II and PET. The computer system is available with a GT option which nearly doubles the speed again, making it comparable to high end mini-computer systems. High speed execution makes elaborate video animation possible as well as other I/O functions which until now, have not been possible. The C8P DF features Ohio Scientific's 32 x 64 character display with graphics and gaming elements for an effective resolution of 256 x 512 points and up to 16 colors. Other features for personal use include a programmable tone generator from 200 to 20KHz and an 8 bit companding digital to analog converter for music and voice output, 2-8 axis joystick interfaces, and 2-10 key pad interfaces. Hundreds of personal applications, games and educational software packages are currently available for use with the C8P DF.

**Business Applications**

The C8P DF utilizes full size 8″ floppy disks and is compatible with Ohio Scientific's advanced small business operating system, OS-65U and two types of information management systems, OS-MDMS and OS-DMS.

The computer system comes standard with a high-speed printer interface and a modem interface. It features a full 53-key ASCII keyboard as well as 2048 character display with upper and lower case for business and word processing applications.

**Home Control**

The C8P DF has the most advanced home monitoring and control capabilities ever offered in a computer system. It incorporates a real time clock and a unique FOREGROUND/BACKGROUND operating system which allows the computer to function with normal BASIC programs at the same time it is monitoring external devices. The C8P DF comes standard with an AC remote control interface which allows it to control a wide range of AC appliances and lights remotely without wiring and an interface for home security systems which monitors fire, intrusion, car theft, water levels and freezer temperature, all without messy wiring. In addition, the C8P DF can accept Ohio Scientific's Votrax voice I/O board and/or Ohio Scientific's new universal telephone interface (UTI). The telephone interface connects the computer to any touch-tone or rotary dial telephone line. The computer system is able to answer calls, initiate calls and communicate via touch-tone signals, voice output or 300 baud modem signals. It can accept and decode touch-tone signals, 300 baud modem signals and record incoming voice messages. These features collectively give the C8P DF capabilities to monitor and control home functions with almost human-like capabilities.

**Process Controller**

The C8P DF incorporates a real time clock, FOREGROUND/BACKGROUND operation and 16 parallel I/O lines. Additionally a universal accessory BUS connector is accessible at the back of the computer to plug in additional 48 lines of parallel I/O and/or a complete analog signal I/O board with A/D and D/A and multiplexers.

Clearly, the C8P DF beats all existing small computers in conventional specifications plus it has capabilities far beyond any other computer system on the market today.

C8P DF is an 8-slot mainframe class computer with 32K static RAM, dual 8″ floppies, and several open slots for expansion.

## C8P $895

Or get started with a C8P with cassette interface, 8K BASIC-in-ROM which includes most of the features of the C8P DF except the real time clock, 16 parallel I/O lines, home security interface and accessory BUS. It comes with 8K static RAM and Ohio Scientific's ultra-fast 8K BASIC-in-ROM. It can be expanded to a C8P DF later. Base price $895. Virtually all the programs available on disk are also available for the C8P cassette system on audio cassette.

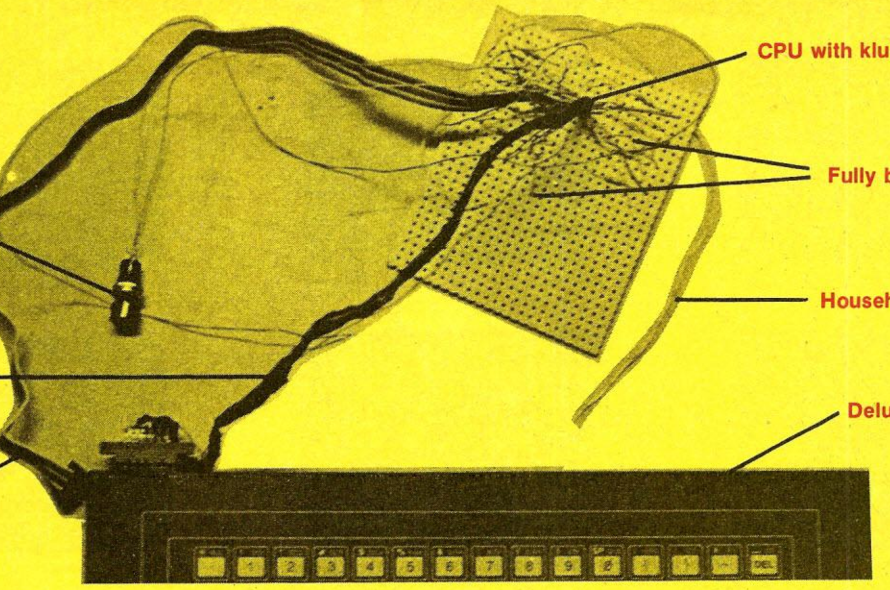
Computers come with keyboards and floppies where specified. Other equipment shown is optional.

**For literature and the name of your local dealer, CALL 1-800-321-6850 TOLL FREE.**

**OHIO SCIENTIFIC**

1333 SOUTH CHILLICOTHE ROAD
AURORA, OH 44202 • (216) 831-5600

**CIRCLE 172 ON READER SERVICE CARD**


CPU with kluge breadboarding area
Fully buffered bus structure
Reset Actuator
Household Control Interface
High-capacity data channel
Deluxe Operator Console
Expansion Bus
1
2
3
4
5
6
7
8
9
0
DEL

# The single chip computer with the features that help you escape from life

### INCOMPLETE COMPUTER

In this advanced chip you get an amateur quality computer that meets few if any of the needs of the serious user. It's totally incomplete. You'll spend literally months getting it to accept a single data bit. All you need to make it run is unlimited time and money.

The computer itself (the thing with the holes) is super. Fast 4 gigahertz operation is so fast that its speed can't be detected with normal test instruments, nor is it compatible with any standard low-speed peripherals available from any other manufacturer, even Cray or CDC. The 690 holes provide cooling from the astronomical temperatures that are generated when electrons are moving at the rated 4 gigahertz speed. And when equipped with the Formula Vee turbocharger option, it makes other computers like Cray-1's and TRS-80's seem like baby toys. Sheer speed is what separates computers from toys, a good lesson to remember the next time you buy a car.

Other features include a 3-bit high capacity bi-directional data channel between the CPU and operator's console, an 8-inch household control interface and fully-buffered on-board bus.

Add that to vectored inputs.

### IMPOSSIBLE EXPANDABILITY

Besides all these features the Cromagnon single chip computer gives you impossible expandability if you ever need it. We've made it impossible because we can't imagine that you'll ever need more capability than what's already built in. That includes a deluxe operator console with no raised surfaces. It's even dishwasher safe. A reset actuator stops the operation of the computer, even mid cycle, and resets everything to a random value.

However, if you can find mil spec high heat components (over production from the Mercury and Sun space shots perhaps) you can wire them onto the breadboarding area adjacent to the CPU. You'll want these components close to the CPU to minimize electron travel but not too close lest they disintegrate from the extraordinarily high temperature of the CPU.

Cat Cage

**Cromagnon**
**Specialists**
**280 Fido Ave., Pit View, California**
**(415) 626-3987**

### HARD TO USE

Another inconvenience that makes the Model XPM (for 'experimental') computer so difficult to use is our 4K PL/I compiler. This features a subset of ANSI subset PL/I including the powerful 'BEGIN' and 'END' statements. With this included software you're ready to go. In addition the monitor gives you one more command (NOP). This software, without extensive modification will not access any I/O ports, the operator's console, or the memory.

Finally, to simplify things to the ultimate, there is no memory, nor is there any way of adding any. In addition, there is no way to power up the unit, so you'll never have to worry about heat, fires, lost data, frustration and all the other things that go hand-in-hand with computers of any size or shape.

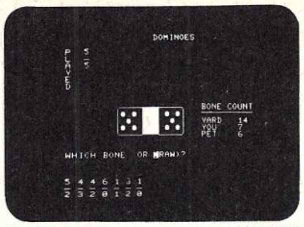
### OPTIONAL CAGES

If you feel that watching a computer do nothing is not your cup of tea, we suggest a cat. Cats are fun, they keep your feet warm on cold winter nights and they have kittens. Our optional animal cage will help you capture stray cats to bring home.

So act today. Get this unbelievable computer and a cat in your home right away.

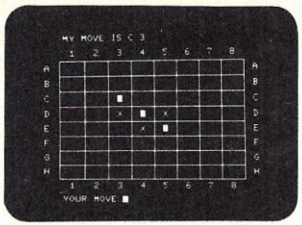
# Software for the PET

PROGRAMMA Software Program Products


DOMINOES
PLAYED 5
BONE COUNT
YARD 14
YOU 7
PET 6

WHICH BONE (OR DRAW)?

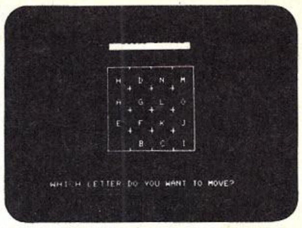
**DOMINOES** $ 6.95


MY MOVE IS C 3

1 2 3 4 5 6 7 8
A B C D E F G H

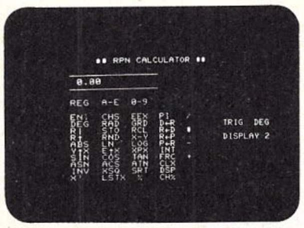
YOUR MOVE

**OTHELLO** $ 9.95

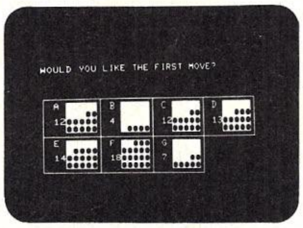

H D N M
A G L O
E F K J
B C I

WHICH LETTER DO YOU WANT TO MOVE?

**LETTER SQUARES** $ 6.95

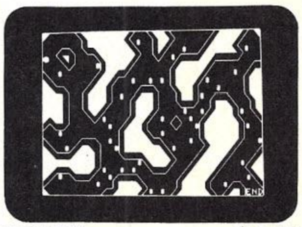

** RPN CALCULATOR **
0.00
REG A-E 0-9
TRIG DEG
DISPLAY 2

**RPN MATHPACK** $19.95

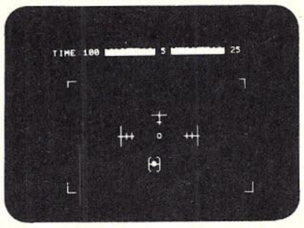

WOULD YOU LIKE THE FIRST MOVE?

A 12
B 4
C 12
D 13
E 14
F 18
G 7

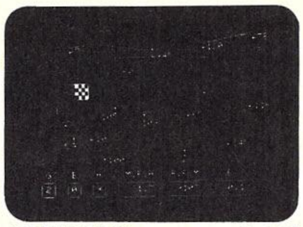
**SUPER NIM** $ 6.95

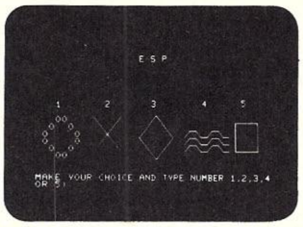


**DIR/REF** $ 6.95


TIME 100 5 25

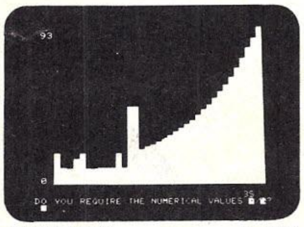
**SPACE WARS** $ 9.95


**GRAND PRIX** $ 6.95



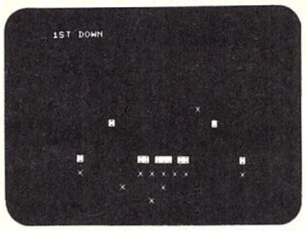
MAKE YOUR CHOICE AND TYPE NUMBER 1,2,3,4 OR 5)

**E.S.P.** $ 9.95

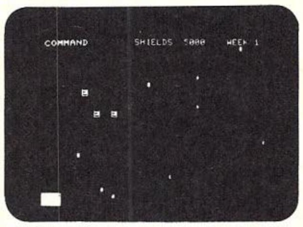


DO YOU REQUIRE THE NUMERICAL VALUES?

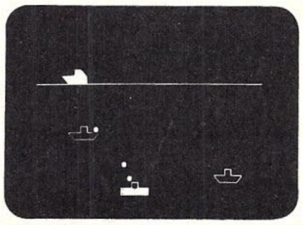
**FORECAST** $ 9.95

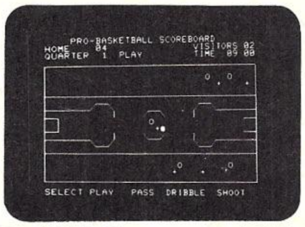


$ 6.95

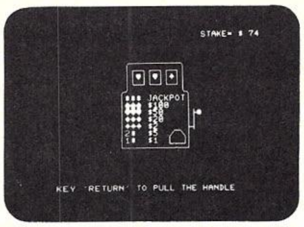

COMMAND
SHIELDS 5000
WEEK 1

**BLOCKADE** $ 9.95


**DEPTH CHARGE** $ 9.95

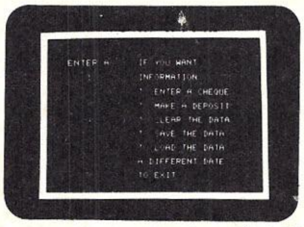

PRO-BASKETBALL SCOREBOARD
HOME 04
VISITORS 02
QUARTER 1 PLAY
TIME 09 00
SELECT PLAY PASS DRIBBLE SHOOT

**BASKETBALL** $ 9.95


STAKE= $ 74
JACKPOT
$100
$50
$20
$10
$5
$1

KEY 'RETURN' TO PULL THE HANDLE

**SLOT MACHINE** $ 6.95


ENTER A IF YOU WANT
INFORMATION
ENTER A CHEQUE
MAKE A DEPOSIT
CLEAR THE DATA
SAVE THE DATA
LOAD THE DATA
A DIFFERENT DATE
TO EXIT

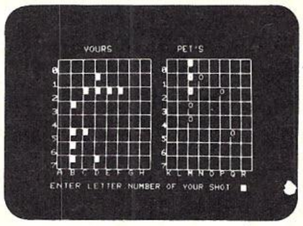
**HOME ACCOUNTING** $ 9.95

All orders include 3% postage and handling with a minimum of $1.00. California residents include 6% Sales Tax.

**VISA** **MASTERCHARGE**

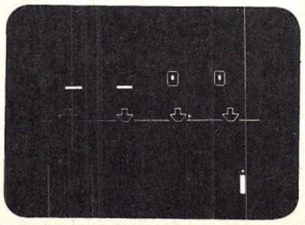
**CIRCLE 181 ON READER SERVICE CARD**

PET IS A TRADEMARK OF
COMMODORE BUSINESS MACHINES, INC.


YOURS
PET'S
0 1 2 3 4 5 6 7
A B C D E F G H
K L M N O P Q R

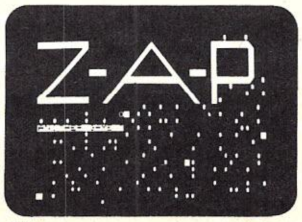
ENTER LETTER NUMBER OF YOUR SHOT

**BATTLE SHIP** $ 9.95


**SHOOTING GALLERY** $ 9.95

**PROGRAMMA**
**INTERNATIONAL, Inc.**
3400 Wilshire Blvd.
Los Angeles, CA 90010
(213) 384-0579
384-1116
384-1117

Dealer Inquiries Invited



**ZAP** $ 6.95

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Dr. KiloByte's Creative Personal Recreational MicroComputer Data Interface World Journal is published when the mood is upon us, generally in conjunction with April Fool's Day. It is published by the self-same erudite, highly educated gang of idiots that bring you the sensationally sparkling, unbelievably wonderful Creative Computing magazine every month. Offices in Post Office Box 789-M (a cozy place), Morristown, NJ 07960.

Any resemblance to people, magazines, styles, etc. in this magazine is intentional for satirical and humorous purposes only. Letters about suing us will be ignored.

Single copies of this issue $2.50 (except to libel lawyers, to whom copies are not available at any price).

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# PUBLISHER'S REMARKS

Wine Yellow

## Other Magazines Awful

Recently I had a chance to read all the other personal computing magazines... It will come as no suprise to readers of DKBCPPRMCDIWJ that, objectively speaking, there's no other personal computing magazine worth reading. For example, I notice that *Byte* is written only for Ph. Ds. I can't imagine an ordinary person like myself understanding all that hard stuff! Besides, according to a recent survey 89% of Byte's readers have a Bachelor's degree or better... I just can't understand why advertisers want to waste all their good money on such rich educated snobs! The average DKBCPPRMCDIWJ reader has a 9th grade education and probably buys a whole lot more computer stuff in a year than one of those high class *Byte* readers. To give you a short course in advertising, you can *always* tell the best place to advertise by where the mail order ads are. Ignore all those fancy dancy statistics like cost per thousand and all that stuff; it's just a big snow job. I'm even trying to convince some advertisers to run mail order ads for cake mixes and dog food. Watch these pages.

Next we come to *Interface Age*. As I'm sure you're all aware, Interface Disgrace is strictly for OEMs... an abbreviation I picked up somewhere for "Optional Equipment Manufacturers." This is a technical term, you don't have to remember it. Just remember, *Interface Age* is strictly for small business applications. Admittedly, I'll admit this is a much larger and more lucrative field than hobby computing, but, heck... I'm not in this for the money! So don't buy *Interface Age* or advertise there. I'm just trying to help you.

Everytime I read *Creative Computing,* it reminds me that I don't like science fiction. And the worst thing about *Creative Computing* is that all their readers are high school students! All of them! If you look at the statistics I know they'll seem different but that just goes to show you what a snow job numbers can be. I never trust them myself. Besides, I can never get those programs in that magazine to work on my 4K Level I TRS-80. I think they put errors in those programs on purpose...

## Basic Dooms Other Computer Languages

Nowadays, BASIC is so popular that it threatens to make every other computer language obsolete... or irrelevant! I can hear the screams and the gnashing of teeth in the entire DP industry already... but they'll just have to wake up to the fact that it's the micro end of computing that's in the forefront. They'll have to convert all those old FORTRAN, COBOL, APL, LISP, PL/I, PASCAL, assembler, and everything else programs to good old Microsoft BASIC. This is really a fantastic opportunity for some hobbyists who know what they're doing.

A few of the whining liberal progressives in the field may claim that BASIC is about 15 years old and that it is practically ancient but to those people I say So What. Progress is never easy. In fact, one day BASIC may even make English obsolete. So, my message to all these backward people trying to stifle my creativity by denying that BASIC is the only good computer languages is: 850 IF K=U(I) THEN GOSUB 4020 ELSE K=FND(Q(I,J))*SIN (X)!

## IBM Personal Computer

I predict that IBM will be very disappointed in sales of its new liquid helium cooled "P-Series" personal computers (see the new product announcement elsewhere in this magazine)... I've always maintained that an 8-bit micro (such as my own 4K Level I TRS-80) is more than capable of handling anything I've ever thought of. All that extra stuff, like femtosecond cycle times, megabytes of memory, and newfangled computer languages, are just cheap gimmicks. I ask, can it run Level II BASIC business software? But IBM sales people just give me blank stares...who knows, they could be computers themselves.

## Make Millions with Instant Confusion Software

Almost everyone has a few game programs lying around that could easily be parlayed into an immense fortune. Let's say, for instance, that you typed in the TicTacToe game from that BASIC Computer Games book... Now, if Instant Confusion Software was able to sell that program in 20,000 Radio Shack stores and in 2,000 retail computer stores, and sold just a paltry 500 in each store, that would be 11,000,000 cassettes sold! At $20 each and a 20% royalty you could be $44,000,000 richer... not bad for just TicTacToe.

Naturally, if you sell the program to one of our many inferior competitors, they will probably only sell a few hundred thousand at the most. You'll just be hurting yourself. So send in those programs! If I could get that TicTacToe game to work, don't think I'd hesitate for a second...

## Help Protect Instant Confusion Software

At Instant Confusion Software, we are very aware of the piracy of personal computer software that goes on... both at the retail and the individual level. We have an idea to stop it. Go out and buy a handgun. Next time you're at a computer club meeting or at a computer store, be sure to admire an Instant Confusion Software program, and pressure the owner for a free copy. If he gives you one (always wait until he gives it to you)... pull out the gun and shoot him on the spot... this is a sure fire way of cutting down on software piracy and it is the thing that made America great.

I know, at first this is going to be hard for some of you to do. No one likes to shoot people. But next time a "friend" asks you for a copy of that Instant Confusion Software program, you have to make a very important decision. Is he really my friend or am I making a bigger mistake than I think?

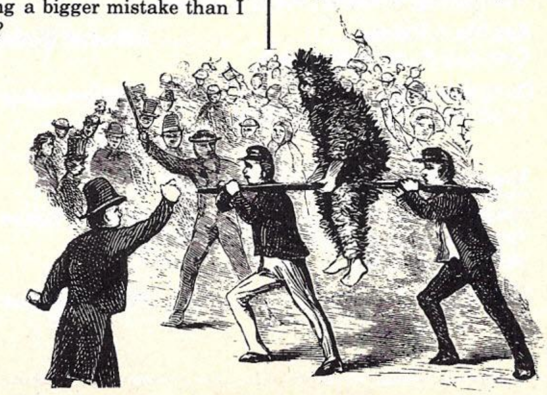
## Microcomputer Organization for Trade and Retailers

The newly formed Microcomputer Organization for Trade and Retailers (MORTAR) may be firing some direct hits at some of our big problem areas. One thing that really concerns me is the Yellow Peril of foreign-made microcomputers. My suggestion is that we fight OPEC by jacking up the prices of microcomputers sold overseas higher and higher and higher. Then we take the excess profits and make computers over here dirt cheap. Not only do we save America and keep it great but we also take care of those Japs and Chinks and other undesirables.

## Reader Liability

One of your weighty and inescapable responsiblities as a reader of DKBCPPRMCDIWJ is to aid and abet our ambitious drive to get more advertisers and readers. This will benefit you by making this a bigger and better magazine thus increasing our circulation and advertising even more! You can help by "encouraging" your friends to subscribe when they've had too much to drink at parties or even take names out of the phone book and fill in a few subscription blanks. They won't be sorry later. You can help even more by tearing out the reader service card in the back of the magazine and sending it in. Advertisers put a lot of stock in these reader responses to their ads so do it now! (All the numbers have been pre-circled for your convenience.) Failure to take your reader liability seriously may result in legal action and possible unfortunate unintentional harm to your close relatives.

**Pictured below is what happens to readers who do not take their responsibilities seriously.**



# Mainframe Owners . . . Maybe TIS-80 Should be Your Next Hardware Investment!

**Designed for business.** Television Igloo's design concept for the TIS-80 was to build a computer that could be used in the home — not a "home computer." There's a big difference. The TIS-80 is perfect for those jobs that interrupt the data processing schedule of large business computers, like keeping track of office betting pools, gossip update reports, and expense account padding calculations. Compare this machine with the highly overrated IBM 5110 and you'll see why we have the competition quaking in its boots.

**Software** for the TIS-80 includes accounts payable, accounts receivable, general ledger, stock market analysis, inventory, payroll, corporate financial planning, mailing lists, statistics, advanced multi-user database mana-ger, online insurance records system, and Chase-Manhattan Banking System. (All available third quarter 1980. We Promise.)

**Want to change our software** to fit your way of doing things? Forget it! It would take an expert programmer 200 hours at $50/hr. to do it. It's cheaper just to change your system to fit ours. That's what computers and technology are all about.

**Expansion** beyond the basic unit requires the expansion interface, buffered expansion cable, buffered expansion cable buffered interface, buffered expansion cable buffered interface cable, and two nine-volt batteries (not incl.)

**The new TIS-80 Model II** (see inset) is an entirely new concept in computing. It features an advanced hexadecimal keyboard, augmented keyboard, and sophisticated graphics for tic-tac-toe and biorhythms. It's all business.

**TIS-80 Features**

- 23K or 39K RAM
- External printer
- 17 connecting cables
- 13X22 character CRT
- 5 Paddle controllers
- Separate keyboard
- Vectored 4H2 throughput

The new TIS-80 Model II

**Television Igloo**

**The biggest little name in little big computers™**

By Htron Evets,
Features Editor

# You Can Tune Up Your PDP-11

## Even real computers can benefit from a tuneup and bolt-on mail-order accessories. Here's how to do it.

When we first got our own 128K PDP-11/34 with twin 80 megabyte CDC hard disks and three Hazeltine 1500 terminals, we thought we had something really special on our hands. "Humph!" we exclaimed. "Microcomputers are just toys! That's why we can't get more than two of our thirty systems to work at the same time. But this is a real computer. It cost $76,000, more than any of us make even in a whole year! It won't let us down." Once that illusion was surgically removed courtesy of Control Data Corporation, we were able to view the 11 as just so many Poly-Paks bargain barrel drop-out ICs though it can support a mean game of multiplayer Star Trek written in virtual LISP.

This brings us to the crisis at hand. We noticed that when all three players were trying to dock their ships at Starbase while the LISP interpreter was doing a virtual memory garbage collect, there was a perceptible time delay of 0.2 seconds (worst case). This was extremely disturbing (as you can well imagine) and required immediate action if not sooner.

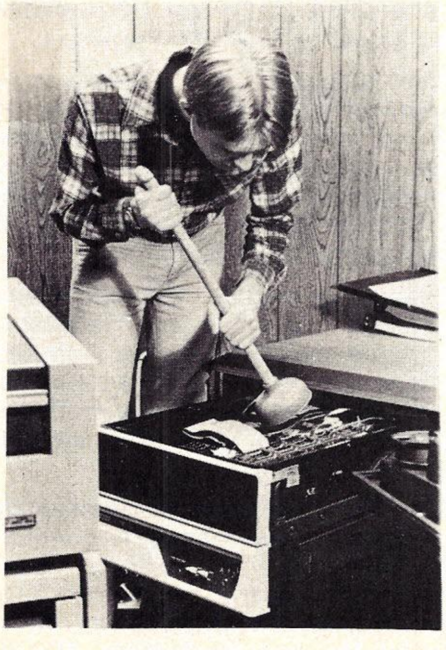


Photo 1: Flushing out clogged circuits.

The first step was to correct a warped memory circuit board. This is best done with a large crowbar. The standard procedure is: Carefully place the crowbar under the printed circuit card and apply pressure. Do not be afraid to use force if need be. Once the circuit board has been straightened out the electrons may flow in straight lines which are much shorter than the curved variety. In fact it is well known the light travels faster in straight lines than in curved ones too.

This did not help the problem much so the next step was to flush out the clogged circuits in the CPU. (See photograph 1. Abbrev.: Photo.) As computer circuits operate, excess electrons sometimes accumulate in out-of-the-way places especially inside integrated circuits. These bad electrons can actually slow down your circuits and make them weak and unreliable. The best thing to do is to get an electron extractor (Radio Shack part number 234-23652, it will be out of stock by the time you get to the store) and plunge them loose. Intensive research is being done at the University of Michigan (Flint) to figure out why and where the electrons get jammed up. One theory holds that it is somehow related to infrequently executed instructions which cause the flow of electrons to stagnate.

Unfortunately, this technique did not help the problem appreciably and it finally struck home that the factory stock PDP-11/34 simply does not have the muscle to run our sophisticated multiplayer Star Trek written in virtual LISP. Something more was needed.

We had read in some of the less respectable computer magazines that you can add a bolt-on turbocharger to your computer and expect an increase of up to 100 b.p.s. Financial reserves being somewhat depleted by a recent embezzlement scandal, we were able to borrow the cash from a fellow employee who explained that she had recently won the Irish Sweepstakes. It's good to know that there's at least *someone* you can trust and depend on when you want a PDP-11/34 Turbocharger add-on very *very* badly. So we sent away for the unit (made by a reputable firm called Earth Power Systems, they advertise heavily so you know they're for real) and waited, meanwhile cursing at the com-

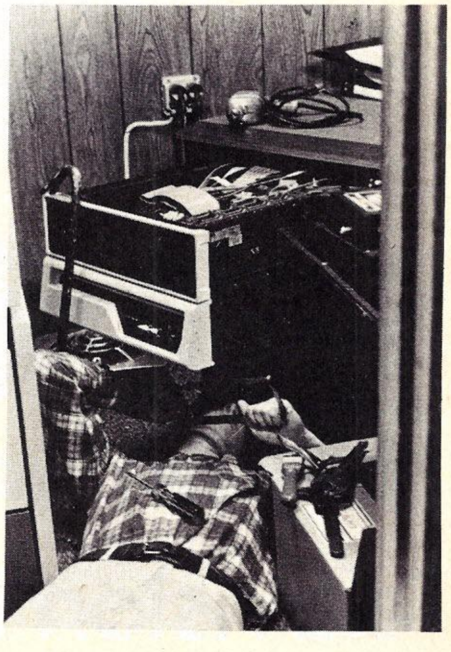


Photo 2: Installing the Turbocharger.

puter every time all three players tried to dock their Starships while the virtual LISP interpreter was doing a garbage collect. (Did I forget to mention that the game is really written in TRAC Language which itself is simulated in LISP? Minor details.)

We were very pleased with the Turbocharger when it arrived, complete with a page and a half of documentation explaining all its wondrous virtues and where to plug it in. It was installed in short order by one of our maintenance workers, see photograph 2 (Abbrev.:Photo.). The installation took only an hour or so and a liberal application of Liquid Wrench helped speed the process. Unfortunately the rep (abbreviation for: representative) from our service agency showed up during the proceedings and did not take kindly to our little experiments. (It is well known that DEC has not officially been racing for years.) However, knowing beforehand that he would show up since this was the only time since the system was delivered that we did not want him around, we were prepared for his visit and diverted his attention with a PET which had a defective cassette interface. This gave us a chance to complete our installation. Later the service rep said that the PET was totally unable to read any cassettes and that this was an intentional design feature.

Once the installation was complete, we turned the 11 over to our resident bit-hacker who took it out for a spin and pronounced the result safe enough for regular use (see photo 3). Indeed, one experiences a real rush when sitting at the console of this high-powered system. The highly disconcerting problem with the Star Trek game has altogether vanished, we are pleased to report. Our next project will be to implement a PL/I compiler written in FORTRAN simulated in TRAC and of course all this done in LISP, and then to write an editorial dissertation on how we use all this computer power to do absolute cursor addressing on the Hazeltine terminal. Fascinating.

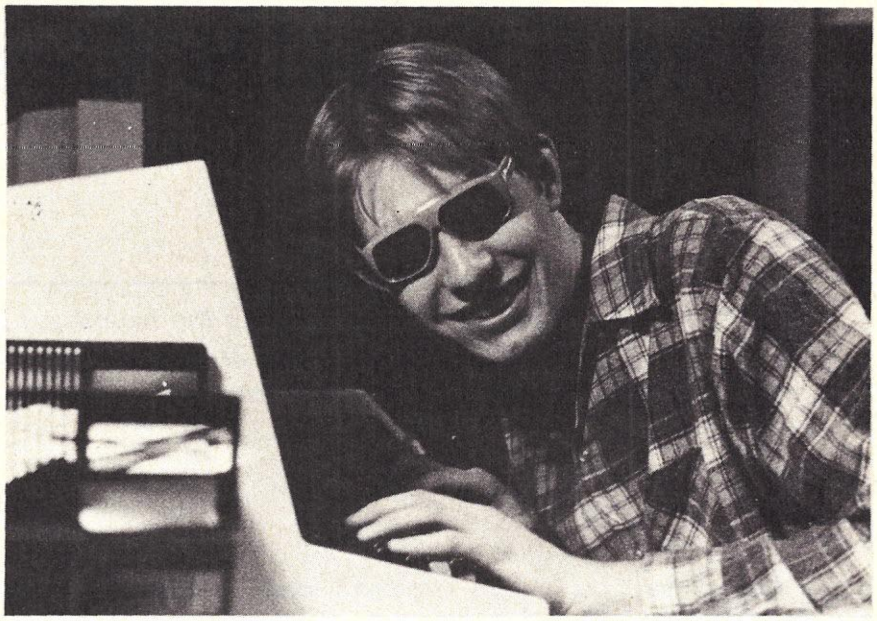


*Photo 3: Taking the PDP-11 out for a spin. Go wild, son!*

FOR TRS-80

WHAT CAN BE CRAZIER THAN SELLING PASCAL COMPILER FOR $15 and $23?

'Tiny' Pascal, runs on any 16K Level II system, includes the **programming structuring** capabilities of full Pascal, but not data structuring.

Compiled People's Pascal programs run about five-times faster than Level II Basic—graphics run eight-times faster. Tape 3 compiler written in Basic, requires T-Bug and Edit-Assmblr, compiles Z-80 code. Tape 6 runs in machine language, compiles faster, interprets P-codes.

| | |
|---|---|
| People's Pascal tape 3, compiles machine code | $15.00 |
| People's Pascal tape 6, | $23.00 |
| Tape 1 Lev. II, 34 business, educational programs | $7.50 |
| (lev. I version avail., 24 programs—separate tape) | |
| Tape 2 Lev. II, 77 programs from Osborne book, "Some Common Basic Programs | $7.50 |
| Tape 4 Lev. I, 21 misc business and educational | $7.50 |
| Tape 5 Lev. II, 24 business, educational programs | $7.50 |
| Tape 7 Lev. II, 31 misc. business and educational | $7.50 |

Add $.50 each tape for postage and handling.
California residents add 6 pct. tax. Dealer inquiries invited.

COMPUTER INFORMATION EXCHANGE
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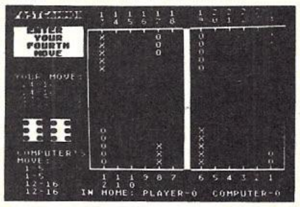
**FASTGAMMON™** by Bob Christiansen. The most popular backgammon-playing game for personal computers is now available for the Atari. Written in machine language, but loads with a simple CLOAD and RUN. This is the best-playing version so far. Eight-page instruction manual includes the rules of backgammon. $19.95



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**WHERE TO GET IT:** Ask your nearest Atari dealer to see *Quality Software's* Atari programs. Or, if you prefer, you may order directly from us. MasterCharge and Visa cardholders may telephone their orders and we will deduct $1 from orders over $19 to compensate for phone charges. Or mail your order to the address above. California residents add 6% sales tax. *Shipping Charges:* Within North America orders must include $1.50 for first class shipping and handling. Outside North America the charge for airmail shipping and handling is $5.00 — payable in U.S. currency.

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**CIRCLE 183 ON READER SERVICE CARD**

*Stephen Kimmel*

# The Etiquette Computers

*Now you can go to even the swankiest affairs at the U.N. and not make an embarrasing faux pas.*

Once small hand held computers such as the Speak and Spell and the language translators had been taught to speak it was probably inevitable that it would occur to someone to teach one to actually improve on what the user was trying to say. Even if the language translators do speak rather broken Spanish, it shouldn't be too difficult to translate typical American English into the socially correct King's English. Yet that is exactly what the good folks at Godno Electronics have done. Not just once but twice with their two new products: The Etiquette Challenger and the Protocol Computer.

The two computers are essentially identical varying mainly in the programming in Rom and price, the Etiquette Challenger being an exorbitant $199.95 while the Protocol Computer is a ridiculous $299.95. They are both approximately the size of an unabridged dictionary and contain fifty proximity switches, a large speaker capable of 124dB and the twenty letter LED display unit. Both units require 14 "D" sized batteries which give the computers a weight of about 28 pounds. We were particularly impressed with the Etiquette Challenger's chartreuse plastic box, although the Protocol computer's hotline red is also impressive.

The instruction manual is a little on the skimpy side. It consists of a single sheet of paper taped to the bottom of the computer. Most of what it says is that you should read a good book on etiquette, that the company is not responsible for anything and that you should forget it anyway.

Operation of the Etiquette Computer could hardly be easier. You simply type in your statement which is recorded inside the machine. Push the translate button and the computer begins to analyze your statement. Anywhere from two seconds to ten minutes later the socially correct thing to say comes booming over the speaker.

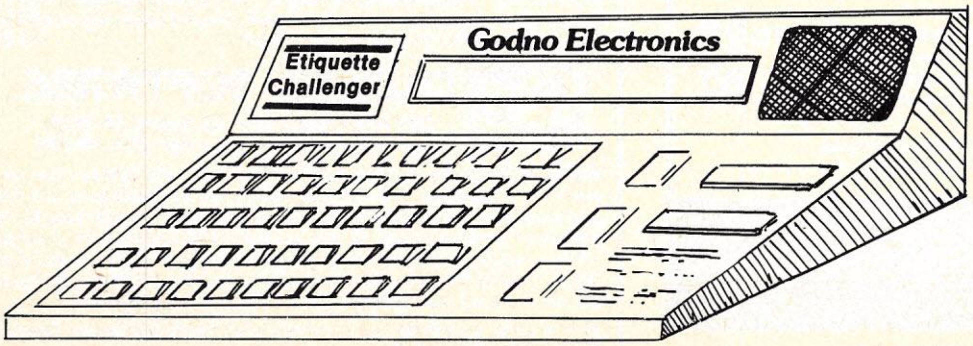
I suppose it would be appropriate to say something about the quality of speech from the computer.

Just to test the unit completely we took it to a cocktail party with some friends near the office. We tried several examples on both machines. Everyone seemed to enjoy them immensely although none of them are currently speaking to us.

Example: We type in "Is that your nose or is that a banana?" Six minutes later the computer says, "My what a lovely necklace. Where is the taxi?" We tried the Protocol Computer with "Tell the Ambassador that we've declared war on his country." Two minutes later the Protocol computer said "Donde es su Taxi?"

Although the Etiquette Computer short circuited and reduced itself to a pool of green plastic when we spilled the Ripple on it, our Protocol Computer proved to be a reliable unit for three hours.

At $199.95 and $299.95, these units are a must for everyone who has no friends and couldn't care less. The units even have braille letters on the keys for use by the blind. A few quick taps with a cold chisel eliminated this annoyance in short order.



# Improvised Homebrewing

Carl E. Whitney

**You don't need experience or expensive tools to build an impressive microcomputer circuit. Your friends will be amazed when they see the remains of your house after you build this display. You can make free telephone calls too.**

Are you aching to build your own system, but put off by all the jargon? Do you spend your nights dreaming of a concatenated bit-slice system with cycle-stealing DMA, only to awaken to the sad reality of a broken toaster that you're unable to fix? Has the myth that homebrewing is hard kept you away from a crack at your own Cray-1?

Not to worry. Microprocessors are **smart**. Adaptable. Flexible. They're able to function in less-than-optimum environments. You don't have to worry about having everything connected perfectly—just hook the micro into a circuit and watch the lights flash. Improvised homebrewing is fun, inexpensive, and so simple that even a systems programmer could do it!

The first step is easy—just find a T.V. that isn't working. Attach a chip to the chassis with masking tape and start running wires to likely-looking spots. Make the connections with alligator clips so that you can change the circuit if it's not up to snuff. If you have a soldering iron, you'll want to solder a few of the chip's pins together—this helps the signals move around inside the micro, greatly improving the performance of your system. (Manufacturers always provide twice as many pins as are necessary, so as to impress buyers.)

There's only one critical step here. You must connect the Vss pin directly to line voltage. Otherwise, the micro won't have enough power to operate. While five volts is enough in an ordinary circuit, your baby needs a full house so it can dope out its configuration and go to work for you. Simple division shows that it will run twenty-three times faster on 115 volts than on five.

You don't need expensive equipment for checkout. Just disable the T.V.'s power interlock so that you can get a closer view of the action. If your bird doesn't fly on power-up, then poke around with your fingers to find the dead spots. A little tingle means about 10 volts. A strong rush means 50 or 60 volts. Try to avoid hitting anything over 100 volts. Just put a screwdriver between the suspected high voltage and ground—if the spark is intensely blue and makes a loud, sharp sound, then the voltage is around 300. Since you don't need that much juice, turn the T.V. off, and run a line from the high voltage to ground, so as to soak up the excess energy.

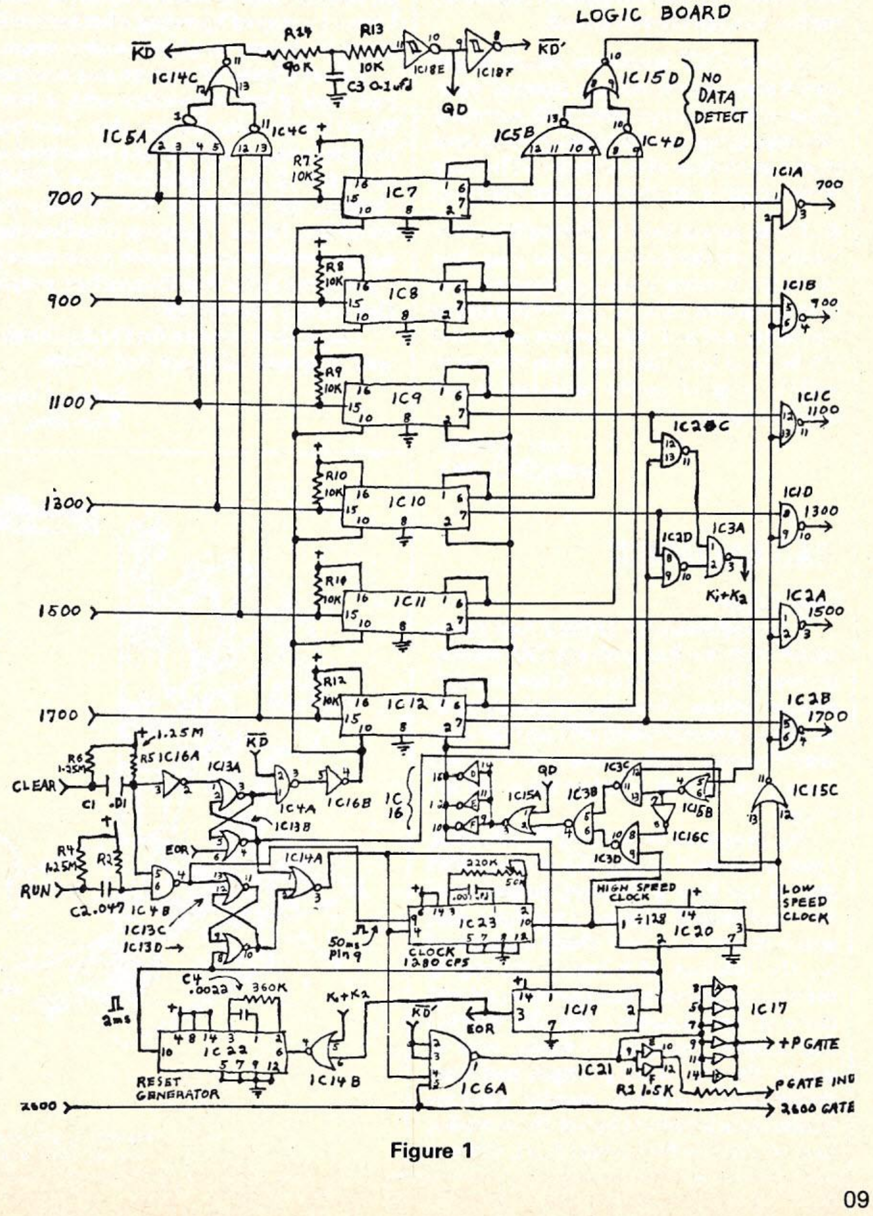
You'll probably get some brilliant video displays, at least for a while. Configuring your system for number-crunching, though, will take some doing. Try wiring in flashlights four at a time to provide a hex readout. You can build an interface to a calculator, but this takes some skill—microprocessors are very jealous of each other, and each one likes to have its own circuit.

A modem? It's easy. The main thing to remember is that telephone circuits are grossly underpowered. They're **starving** for more watts. So, cut your telephone line and strip the wires with a kitchen knife. Take your soldering iron and connect...

Or say you want to make calls free to your computer-using friends on the other coast or in Hong Kong or Japan. Then you need a telephone "blue box". This is a somewhat more advanced project. The circuit diagram for the logic board is shown in Figure 1. Wire this up and wait for next month's issue.

Next month: the blue box tone generators and how to hook it all to your computer to make 4096 simultaneous long distance calls free.

(Note: this is for information only. Using a blue box is against the law and Ma Bell doesn't like them at all.)



LOGIC BOARD
KD
KD'
R14
R13
90K
10K
C3 0.1
QD
IC14C
IC18E
IC18F
IC5A
IC4C
IC5B
IC15D
IC4D
NO DATA DETECT
R7 10K
700
900
1100
1300
1500
1700
IC7
IC8
IC9
IC10
IC11
IC12
R8 10K
R9 10K
R10 10K
R11 10K
R12 10K
IC1A
IC1B
IC1C
IC1D
IC2A
IC2B
IC2C
IC2D
IC3A
K1+K2
CLEAR
RUN
R6 1.25M
R5 IC16A
C1 .01
R4 1.25M
R3
C2 .047
IC13A
IC4A
IC16B
IC13B
IC14A
IC4B
IC13C
IC13D
IC16
IC15A
IC3B
IC3C
IC15B
IC16C
IC3D
IC15C
220K
5CK
IC23
50ms Pin 9
CLOCK 1280 CPS
HIGH SPEED CLOCK
÷128
IC20
LOW SPEED CLOCK
C4 .0022
360K
2ms
IC22
RESET GENERATOR
IC14B
K1+K2
KD'
EOR
IC19
IC6A
IC21
R1 1.5K
IC17
+P GATE
P GATE INV
2600
2600 GATE

Figure 1

# LETTERS

## MAINTENANCE TIPS

Dear Editor:

The article "A Simplified Guide to Hardware Maintenance" in the July issue (page 124) prompted me to pass along several maintenance tips I have found valuable over the years.

1) If your CRT screen contracts occasionally, try removing the plug from the yoke, rotating it two pins clockwise, and plugging it back in. If it refuses to fit, give it a sharp rap with a 9- or 10-pound sledge hammer.

2) Disk drive read and write errors can be corrected by rubbing the recording surface of the diskette with 120 - grit sandpaper. If this does not correct the problem, mount a large horseshoe magnet an inch or so from the drive head.

3) If your CRT enclosure seems to get moderately warm during normal operation and is not equipped with a cooling fan, simply spray the interior of the unit with a good dose of cold water. (The little brass sprayer for plants works just fine.)

4) If your power cord is getting frayed or has little cracks down near the plug, just run to the hardware store and get some of that black electricians' tape. Wrap five or six turns around the suspect area and it'll be good for a lifetime. (Don't forget to pull the plug out by the cord, and at a 90 degree angle!)

Tom Hudson
Springfield, MO

## BAD RADIATION

Dear Editor:

I am consistently getting **bad radiation** from the Radio Shack TRS-80 microcomputer. "Creative Computing" printed letters about bad radiations in the September-October 1977 and the January-Febuary 1978 issues but I do not know how to tell whether they are relevant.

My experience with the TRS-80 is that I get "sunburn" (especially on the **right** side of my face and body), wrinkles on my face which appear overnight and won't go away (I look **older** because of it), the healing of minor cuts, etc. is **much** slower and it leaves a scar, altered state of consciousness (for the **worse**) and altered perception (vision, way of seeing things), feeling stupid and very significantly lowered mental abilities which lasts for about two or three weeks, loss of potency for several days, strange dreams, depression, nausea, slight abdominal pain, lethargy, slightly impaired right hand (with which I type), eye spasms for at least a week, less energy, and very short temper. Also, a feeling inside which I can't really describe but I call it a "burnt" feeling. And I think that using the TRS-80 might have also made me more adversely susceptible to the radiations from an ordinary television screen **and** the CRT.

Over the past two years I have dared use the TRS-80 only four times and I have gotten the same bad effects with both Level I - 4K and Level II - 16K. I don't use it anymore because the results on me are very bad and persist for a long time. (But the noticable effects **do** go away eventually except for the wrinkles and perhaps there is some very slight permanent loss of mental abilities. Also, I have no way of knowing whether it will result in cancer in about twenty years.)

I do not know of anyone else who has had such a bad experience with it but I hope that you can believe this; I am **not** exaggerating. I don't know what kind of radiation it is. I have had the TRS-80 checked for radiation but nothing unusual was found. I suppose that there are **some** people who are much more susceptible to the radiation than **other** people. But I don't know **why**.

I hope that you can find and publish a way to **avoid** all these bad effects.

Steven Cohen
Kim Buc, NJ

## GUERRILLA WARFARE

Dear Editor:

Are you fed up with global aggression? Even as you read, growing numbers of intrepid computer warriors are fighting a cruel and ruthless alien force that makes Klingons look like cream-puffs. These Invaders, led by a superior intelligence, HATA, have taken control of countless numbers of Apple computers, and constantly engage our warriors in fierce battles.

The warriors themselves, are distinguished by their unusual black and blue, or calloused left thumbs. They are, however, seldom deterred by these 'mortal' wounds; as long as they can still press the firing button.

Do you have a strong thumb and a weak mind? Vent your frustrations! Take on this Apple invader and kill a few aliens in your spare time.

All Thumbs
Tewksbury, Massachusetts

P.S. Coded message for fellow warriors—
50:A2 0F B5 59 9D 33 05 CA D0 F8 CC AE C5 AE D4 C8 CF CD C1 D3 A0 B4 B4 B5 B0

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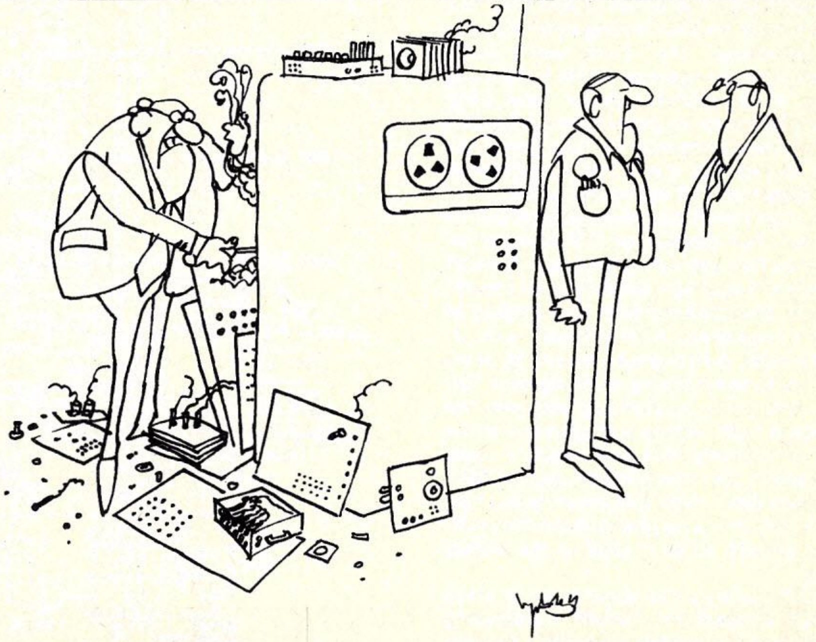
**When you see a situation you cannot understand, look for the financial interest.**



*"He said he could fix it in half the time it was taking me, so I let him try . . ."*

Chances are you've never even thought about insurance on your mini- or microcomputer. Why should you? You're not running tons of DOD stuff and student activists are more interested in other targets lately.

Well, you should worry because you really depend upon your computer much more than you think. Also, you may be able to collect some bucks for that obsolete 10-month old computer that has just been replaced by a new model. Really good insurance might even cover the cost of replacing your tape reels and disks too. After all, most insurance investigators don't know that tape stays on the reel and floppy disks stay in their housings. Just take some empty reels and tell the investigator that the tape and disks containing your priceless data were inside the machine when the fire struck. Or flood. Or earthquake.

Earthquake damage is your best bet for a fraudulent claim. Show your insurance examiner box after box of floppy disks, all of which now bend as a result of the earthquake. Show him/her that the bending is worse than any fire could ever be since the data bits cannot tolerate excessive flexing. Show him/her that this is the equivalent of a rubber check and it cannot be tolerated in your ship-shape operation.

What about the actual information on those disks? If the disks bend even 0.005 cm, you've lost that information. Which makes your computer useless until you reproduce that data. And that costs money.

So the SaltPeter, the same folks who brought you your first computer upchuck in 1961, have written a new policy especially for mini and microcomputers. Not only will we replace your hardware, we will also replace your empty tape-reels and disk jackets.

And of course there are plenty of "screw the policyholder" options available. With the new mini/micro computer policy from the Salt Peter we can help your computer remember everything it forgot.

So don't forget to look in the Yellowed Pages and call an Independent Agent representing the Salt Peter the next time you're looking for a way out of a financial fix. Torches available at slightly extra cost.

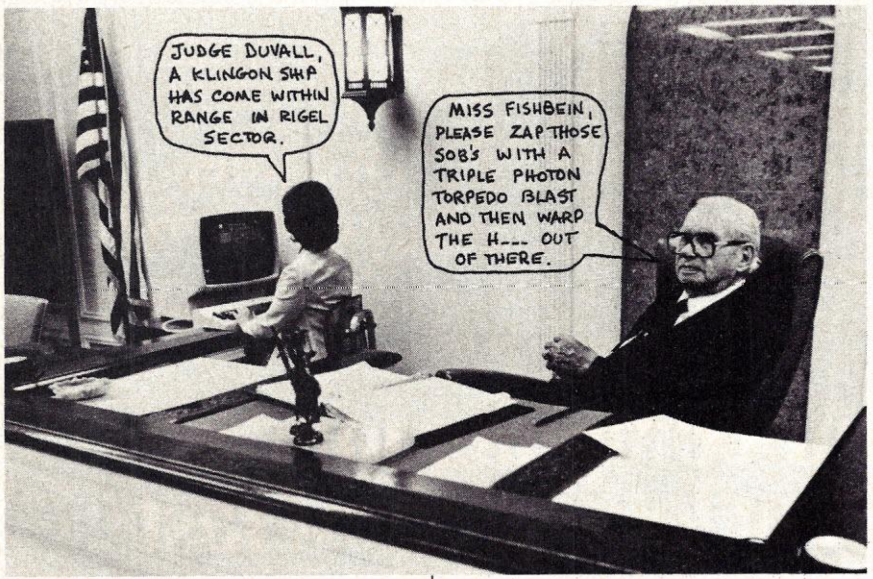
**We keep raising insurance rates.**

# Your mini-computer may be insured, but let's see how fast it can forget everything it ever learned.

Diskette 2D

**The Salt Peter**

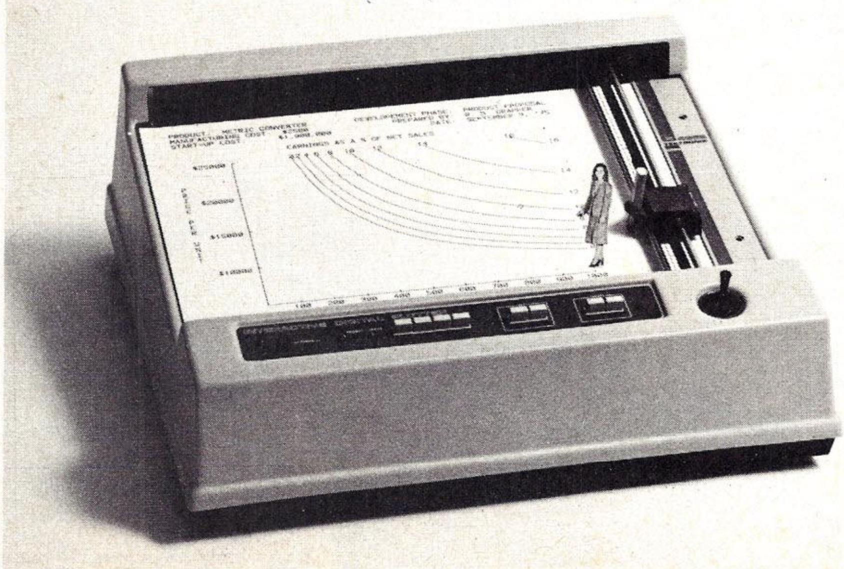
# COMPUTER IN THE COURT


JUDGE DUVALL, A KLINGON SHIP HAS COME WITHIN RANGE IN RIGEL SECTOR.
MISS FISHBEIN, PLEASE ZAP THOSE SOB'S WITH A TRIPLE PHOTON TORPEDO BLAST AND THEN WARP THE H--- OUT OF THERE.

Tarrant County Court Judge J.C. Duvall keeps a computer terminal on his courtroom bench and frequently asks his clerk to check the past record of a person appearing before him. The terminal is tied into the county's criminal justice information system and provides instant access to case files stored in the IBM computer. Says Duvall, "Occasionally I have a case and don't have the complete criminal record in front of me. I can use the computer to find out if the person has been arrested before, how many times he's been in jail, and if he's out on probation...I owe it to myself and the public to know as much about a person as I can before I pass judgment."

# HUGE FLATBED PLOTTER

Said by its manufacturer to be the largest ever constructed, this new plotter from Textronik outperforms most other plotters in speed and accuracy. The plotter arm is driven by a 700 b.h.p. diesel engine and moves at speeds up to 45 m.p.h. Operator controls respond easily when jumped on. Intended applications for the plotter include billboard art and graphs of the price of Arabian oil. A two-week factory training course is available for operators of the plotter, since special skill is required in the handling of the plotter paper and changing pens.



# COMPUTERS NEED AIR

Results of a recent study conducted by Professor Arnold Tom at the University of Connecticut revealed the need to "air out" computers.

The controlled experiment proved Professor Tom's hypothesis that like plants, animals and toilets, computers will benefit from a little sweet-smelling fresh air.

The weight of the computer and the wind velocity are factors to consider when deciding how much air is best. The Professor recommends the following dosages for maximizing your computer's performance: For a 30-70 lb. micro, air about once every other day for two hours when winds don't exceed 30 MPH. In the event of high winds, air 10 times a day at half-hour intervals. If you have access to a large system (immobile), use a fan. Set it on high for two hours, medium for 10 and low for 12 hours every day the computer is in use.

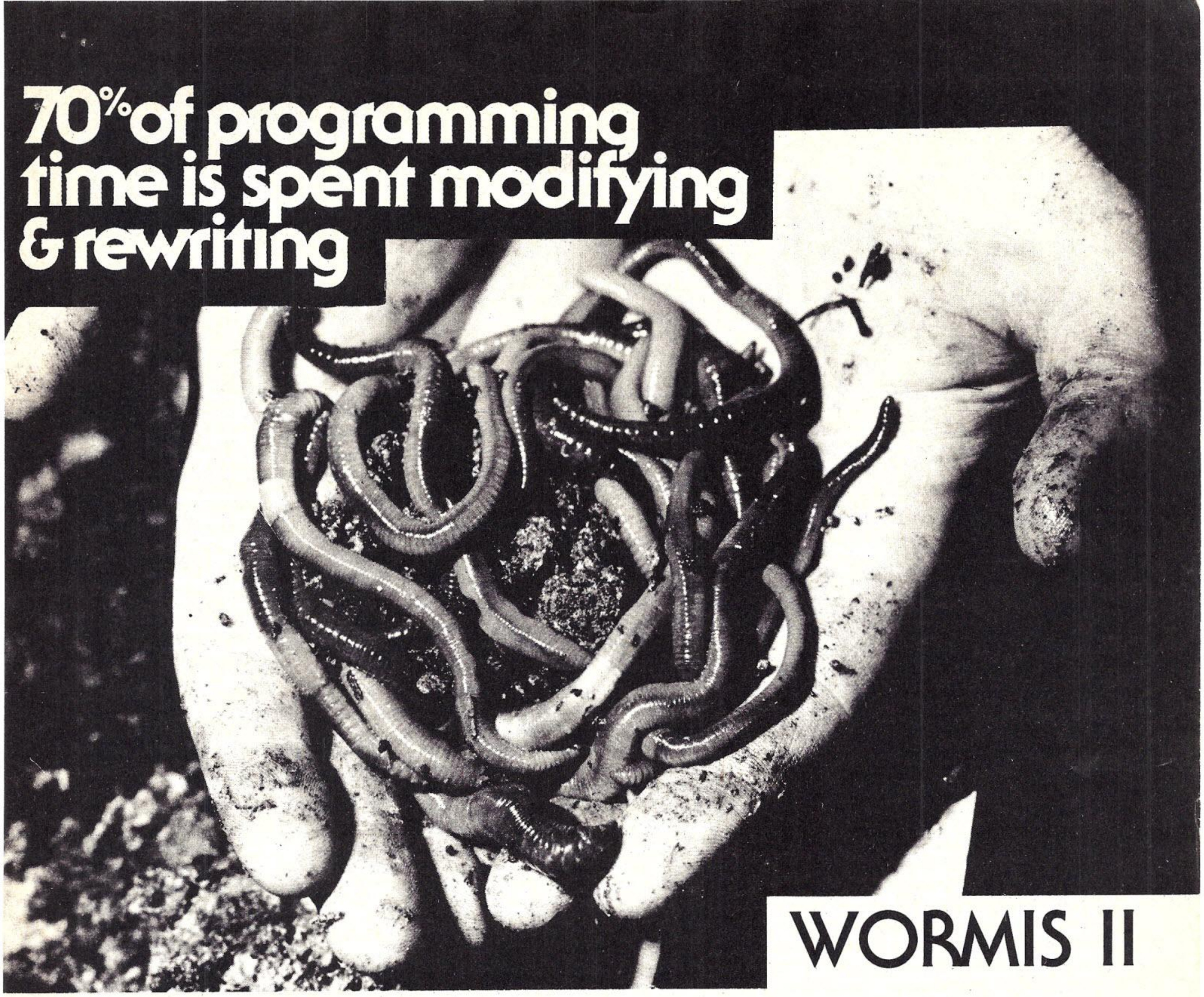
Manufacturers are presently testing to see if individual systems require varying degrees of air. All are anxious to design a computer requiring little to no air because they fear this airing process will be an inconvenience of computer operators.

Federal law, however, now requires that all manufacturers of computers provide instructions for airing time engraved on the front panel where it can act as a reminder.

# CDC METRIC CONVERSION

Control Data Corporation has announced a 2000% increase in the price of its products. The reason for this increase, according to CDC, is that their entire product line is being converted to metric. All internal calculations will be done in metric, rather than the old-fashioned out-of-date English units. Owners of existing CDC computers are advised to contact their CDC representative about updating to the new metric versions of all software (including metric COBOL). It is believed that CDC is the first company to convert to the little-known but quite powerful binary metric system, but other biggies are expected to follow. In fact, there may be a sudden glut of unwanted English unit computers on the used computer market.

# 70% of programming time is spent modifying & rewriting



# WORMIS II

# kills bugs before they become worms.

Recent studies indicate that, in order to keep programs current with OSHA regulations, up to 70% of the efforts of a typical programming department are spent modifying or entirely rewriting programs that were done at least once before.

How can you find the time to develop productive new systems?

**WORMIS II**

The data independence built into WORMIS II dramatically reduces the time spent on maintenance. With WORMIS II, program modules are kept completely independent of data, thus the data have no effect on the running of the programs. Furthermore, the programs have no effect on the data.

This is all possible because WORMIS II is both a data base storage system (like a large box) and a complete English-like nonprocedural language (like Basic).

With WORMIS II, you just say what you want. You don't have to tell the computer how to produce it. Even if you did, it wouldn't because it knows what's best for your data. That means no time-consuming changes every time you change the data base.

There are 3.4E12 ways WORMIS II can affect your data processing. We'd like to tell you about them in our free WORMIS II factbook.

We're Arithmetica, a policy consulting, software burial and technical gobbledygook firm involved in the improvement of computer data without programs.

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# SOURCE DATA

## MOVIES

### BLOOD COMPUTERS FROM OUTER SPACE
### directed by Uall Maylaugh

The recent successes of such movies as *Close Encounters* and Star Wars have shown that high-quality, totally believable science fiction movies can be made. And so we set out, with high hopes, to see Blood Computers From Outer Space. I know that sounds like something you might see at 2 A.M. on a small third-rate TV station. But, I knew that this was a real movie, not on TV, so I wasn't fooled. (Readers who find the reviewer incoherent are reminded that constant exposure to computing machinery has literally rotted out his mind and has left him only a shell of his former self, but we keep him around the office to remind us of better times — Ed.).

The crux of this movie is that hemophiliac computers, delivered in a UFO at least twice as big as Devil's Peak, are beamed down using a transporter by a Wookie. These hemophiliac computers, which are able to transport themselves far and wide by a process not yet understood by modern science fiction, bleed all over everything. It is not yet known why computers should bleed all over everything with motor oil, but we will permit the director to use his artistic license and not question the unbelievability of this element.

The climax of the movie occurs when the blood computers return to earth to look for records of their ancestry at Xerox. Fortunately there are enough copies for all of the blood computers, and they return to the UFO from which they came, in a highly moving scene.

We recommend this film with our life to anyone who falls asleep at movies. We discourage the use of the "gore goggles" but look forward to seeing a 3-D version of this movie, or possibly one in Smell-O-Vision.

— L. Harrison

**There are two sides to every question and if you want to be popular you take both.**

**All looks yellow to a jaundiced eye.**

## BOOKS

### PATENT SOFTWARE
### by Irving Snell

The author, a practicing chemical engineer and amateur lawyer, details the fascinating history behind his pioneer achievement in the patent software field. Working in his home computer laboratory, he accidentally dropped an entire box of punched cards into a vat containing a dilute solution of tannic acid. The cards, which contained the source code for an APL to BASIC translator program, became coated with a non-putrescible substance, impervious to and insoluble in water, and took on a very high sheen. Snell maintains he was subsequently able to clean up the program with only a few wipes of a soft cloth. The book goes on to review the legal battles that raged for years, as he represented himself and took on the prestigious law firm of Hyde, Hare, Harness and Tanner to win his now famous patent. Must reading for the computer history buff.

Published by Prentice Hill & Sons.(1978, 371 pp, index, $12.95).

— A.B. Salisbury

### TRANSCENDENTAL METALANGUAGES
### by U.B. Sorri

This book grew out of a set of lecture notes used by Professor Sorri for his graduate course on "Computer Architecture for Anesthesiologists." While the book has nothing to do with computer architecture, it is Sorri's only published work which justifies its status as the required text for the course. Chapter 1 reviews the evolution of computer languages from SANSKRIT (Symbolic Archeological/Narcolepsical System and Klingon Rehabilitative Interpretive Translator) to APL (All Purpose Language). Chapter 2 then develops the theory underlying metalanguages and transcendental functions, with emphasis on the total lack of the practical applications. The highlight of the book is in Chapter 3 in which the author reveals techniques for the selection of the proper "Persontra Function" which will yield a minimum complexity translator or compiler for any given metalanguage. Each chapter contains several representative problems suitable for either homework exercises or doctoral theses, plus a bibliography citing irrelevant works by friends of the author.

Published by Perishor Publishing House, Inc. (1979, 34 pp, $125.00).

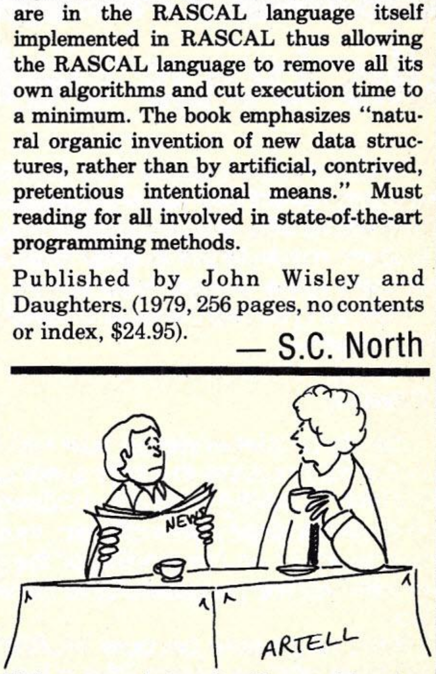
— A.B. Salisbury

### PROGRAMS - ALGORITHMS= DATA STRUCTURES
### by Niklaus Worth

**In this mind blowing new book, the eminent Dr. Worth describes a new concept in computer programming. New and previously unimagined data structures may be uncovered by taking existing programs and removing all the algorithms. Examples given in the book are in the RASCAL language itself implemented in RASCAL thus allowing the RASCAL language to remove all its own algorithms and cut execution time to a minimum. The book emphasizes "natural organic invention of new data structures, rather than by artificial, contrived, pretentious intentional means." Must reading for all involved in state-of-the-art programming methods.**

Published by John Wisley and Daughters. (1979, 256 pages, no contents or index, $24.95).

— S.C. North



***"I'd appreciate it if you'd stop referring to my cooking as raw materials processing."***

My, what big ears you have, Roger.

The better to hear with.

And what can you hear?

All sorts of things that can help you when you want to be first out with a new product.

Our ears can tell you about the new Apple III. Or the TRS-90. Or the TI 99/7. And hundreds of other machines that can affect your company.

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Don't call us just for our extraordinary ears.

But because it's the only way you can survive in this dog eat dog world.

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# DP Firms Support Carter's Brain

### By Evad H. Lha

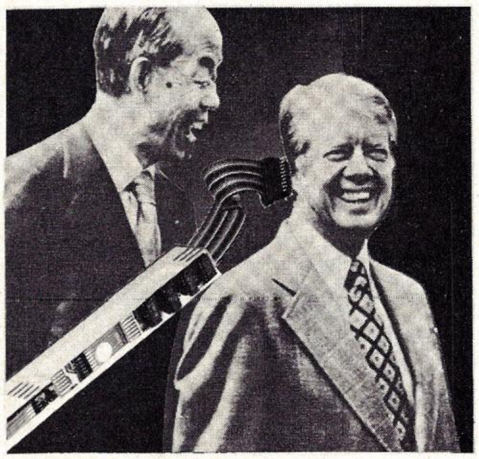
WASHINGTON — Despite doubts about how effective his brain can ever be, U.S. data processing firms expressed support last week for President Carter's plan to wire all the computers of the country through a special communications interface into his brain.

Most industry officials said they would await clarification from the Administration about which products would be wired into the brain before commenting on how the action would affect their companies.

Mainframe manufacturers, notably Control Data Corp, Honeywell, Sperry Univac and IBM, stand to lose millions of dollars as a result of the edict since they are currently selling a great deal of computing power to the White House which under the Brain Plan presumably would be reduced.

Privately, some company executives conceded that the lost revenue might be made up if other country and company heads decide to follow President Carter's lead.

One industry anaylst, however, called these public and private statements "gobbledygook to hide their true concerns."



**World leaders are envious of Carter's computer/brain connection.**

Commenting for the Computer Business Equipment Manufacturers Association (CBEMA), Director Namfuak Dyoll said the industry is supporting the presidential action "for now, because something had to be done. Without DP assistance, Carter's brain is just too weak to deal with the other world leaders who can easily out-think him on any subject except, perhaps, peanut farming."

Namfuak said there is "so much vageness at the White House now" and within the government in general, that the industry can only wait to assess the impact of Carter's action. He quipped that "the hat industry is going to love this because Carter will just have to wear a big hat if he doesn't want everyone to see those bundles of cables running out of his head."

An AT&T spokesperson said that the Western Electric unit of the Bell System had offered to provide a fiber optic cable about 1/8" in diameter to replace the bulkier 5" diameter cable now proposed. IBM, however, objected on the basis that AT&T, under the 1967 consent decree, is not allowed to provide computer data processing services. The Justice Department also refused to approve the link pointing out that if the suit to split up the Bell System is successful then part of the cable would be under the jurisdiction of Western Electric and the connectors under C&P Telephone and the firms might elect to use different communications protocols.

Jody Powell, commenting for the White House, said that Carter was looking forward to having an expanded brain. Carter is quoted as saying, "now I'll be able to figur ot jus wat thos Afganistainiams are tryin ta do."

# Barge Line Can Always Pinpoint Its Fleet

### by Gorf Timrek

BARRENSVILLE, Ky — The Barge Line of Barrensville (BLOB) here uses a unique system to keep track of its fleet of 6 barges and 2 towboats on 18 miles of inland waterways.

With the current emphasis on saving energy, increasing attention is being paid to the use of barges to haul commodities and contraband. Many believe this form of transportation is the most economical and fuel-efficient of all present modes of transportation.

BLOB, together with subsidiaries Barrens Boat and Barrens Terminal, Inc. (BTI), operators of cargo terminal facilities, comprise the Waterways, Holding and Terminal (WHAT) division of Arkansas Air, Rail and Gas Holding and Hijacking Corp. (AARGHH). Currently the company moves more than 1 million pounds of various commodities, including coal, coke, grain, hash, rock salt and other white powdered ores each year.

The on-line towboat and barge locater system is implemented on a Univac 90/80-3 computer system to which 65 Uniscope 200 and 40 UTS 400 CRT terminals are connected. The terminals are distributed between the Barrensville headquarters and regional sales offices located in Harlem, Brooklyn, Newark, South Bronx, Baltimore, Boston Combat Zone, Chicago, Detroit, Miami, Watts and buying offices in Mexico and Honduras.

Unlike other barge companies, BLOB owns its entire communications system and maintains a radio station, WLRT, here. WLRT is capable of communicating alerts to towboats that may have strayed as far as 4,000 miles away. A fleet of 20 fast, low-flying aircraft is also maintained by BLOB to search for lost towboats.

In operation, towboat and aircraft captains report six times daily via radio to WLRT. Their reports include operational data including large barge drops and pickups made since their last radio contact. The radio operators at the station input all messages received into the computer's data base via Uniscope 200 terminals.

The computerized BLOB information system transmits to each regional office all information about the company's boats and barges in that region and stores all information as permanent records. For safety purposes these files are stored in the homes of BLOB executives in Barrensville. A unique software system converts and records all these data in an entirely different format for use by auditors and the IRS.

C. Sretep Dlanod, director of management information systems for BLOB, noted that the company was the first barge line to develop a locater system for its vessels. "From the information we receive from the system, we're probably ahead of anybody else in our distribution system. We can pinpoint the most profitable areas of business and likewise determine those sources which must be eliminated because of marginally profitable or unprofitable operation," he added.

# *Biological Breakthrough*

**Computer study proves turtles are extinct.**

An important computerized breakthrough in the field of biology has recently been reported from Mildew University. Using the combined computing power of a consortium of Sphere, Scelbi, and Sol Computers, Professor Octave Galoot has proven, without a reasonable doubt, that turtles became extinct over sixty-seven million years ago.

Dr. Galoot's computations indicate that turtles may not have even existed at all. What we today regard as turtles, he asserts, are merely self-propagating disk memory units, left behind millenia ago by extra-terrestrials, whose very-long-term plan was to incubate our present peripheral-memory industry. A commendable enterprise, if true.

The Professor plans to publish his findings in a forthcoming edition of *Computer Confabulations,* which is abstracted in *The Review of Obscure Journals.*

### *So What Else is New?*

# ACS Delayed

AT&T's much talked about Advanced Communications Service (ACS) is, according to a Bell System EEOC Spokesperson, on the verge of being released. Under intense questioning, s/he admitted that this statement had been made at least 23 times previously.

ACS was originally conceived in the fertile minds of several former IBMers who were lured away from IBM for the fun and challenge of working for AT&T's newly-formed marketing

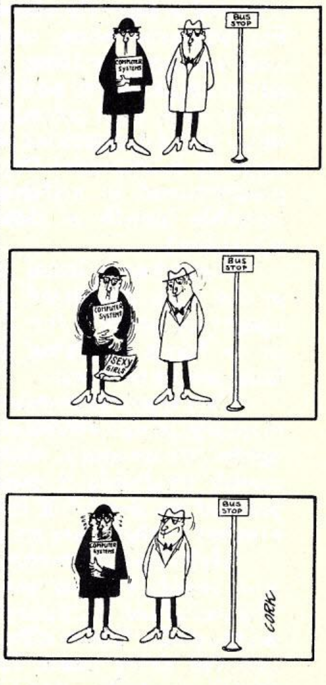
[*continued in Sept. 1980*]

PERSONALLY, I THINK THIS LINE PRINTER STINKS!

# UK visit

**The industrial application of computers seemed to be of particular interest to the Chinese Academy of Sciences delegation which recently returned to China after a tour of scientific establishments in Europe.**

Led by the vice-president of the academy, Hu Ke-shih, the seven scientists and the director of the Bureau of Foreign Affairs, Hoa Ting, included a visit to the BNF Metals Technology Centre.



# MICROSYSTEMS

## Bake Your Own Computer

**Michael Shafto and Peter Worland**

Dumb User Heuristics (DUH), Inc., has purchased a controlling interest in the Nebraska Biscuit Company (Nebrasko). This move comes on the heels of a reported DUH breakthrough in minicomputer architecture. According to a company spokesman, DUH will soon be able to market an affordable, multi-user minicomputer system built around the "crispware" concept. "It's a combination of hardware and software," the spokesman explained. "We can't release the details at this time, but I can tell you we project **very** low production costs."

The following inside information was obtained from a former Nebrasko cookie-icer: The crispware system is based on an architectural innovation known as the Mother Hubbard board. This board features a light, multi-layer configuration of wafer-like components. Our source described it as "flaky."

For use with the MH board, DUH/Nebrasko is reported to have developed three special-purpose chips. For text-processing, especially business form letters and academic writing, there is the buffalo chip. For game applications and Monte Carlo work, there is the poker chip. And for standard numerical calculations, there is the mysterious new chocolate chip. OEM's take note: It is rumored that this chip can even be preprogrammed to self-destruct via melt-down after a variable length of time (dependent upon warranty schedules).

Hansel-und-Gretel Gesellschaft of northern Germany has designed and engineered a baked-in operating system for the DUH/Nebrasko mini. "We never **burn** anything in," the H-u-G engineers have been heard to boast.

Two types of memory will be available: The bubbly memory, in non-returnable bottles, or the less expensive apple-core memory. Although the core memory is more readily available, it must be kept under refrigeration to prevent its decaying into moss. (The entire system is natural — there are no artificial preservatives.)

Multi-user Non-combustible Hardware (MUNCH) will provide a line of compatible external storage media. The standard configuration will include integral dual waffle disks. The waffle is a mega-bite unit which fits a low-cost drive made from recycled electric toasters. DUH reportedly plans to market the waffle through established vendors. Interfacing with printers, tape-drives, and lab equipment will be possible via cereal I/O ports equipped with versatile flap-jacks. Breadboards will be available in rye, whole-wheat, and pumpernickel.

Two high-level languages, CRUMBOL and CRISP, will be available for string, list, or protein processing. ENZYME XI is available for number-munching. The ENZYME XI compiler optimizes and removes lumps from programs while still maintaining acceptable speed. This is possible thanks to the "crispware combo" of the potato chip and Reverse Danish Notation (RDN).

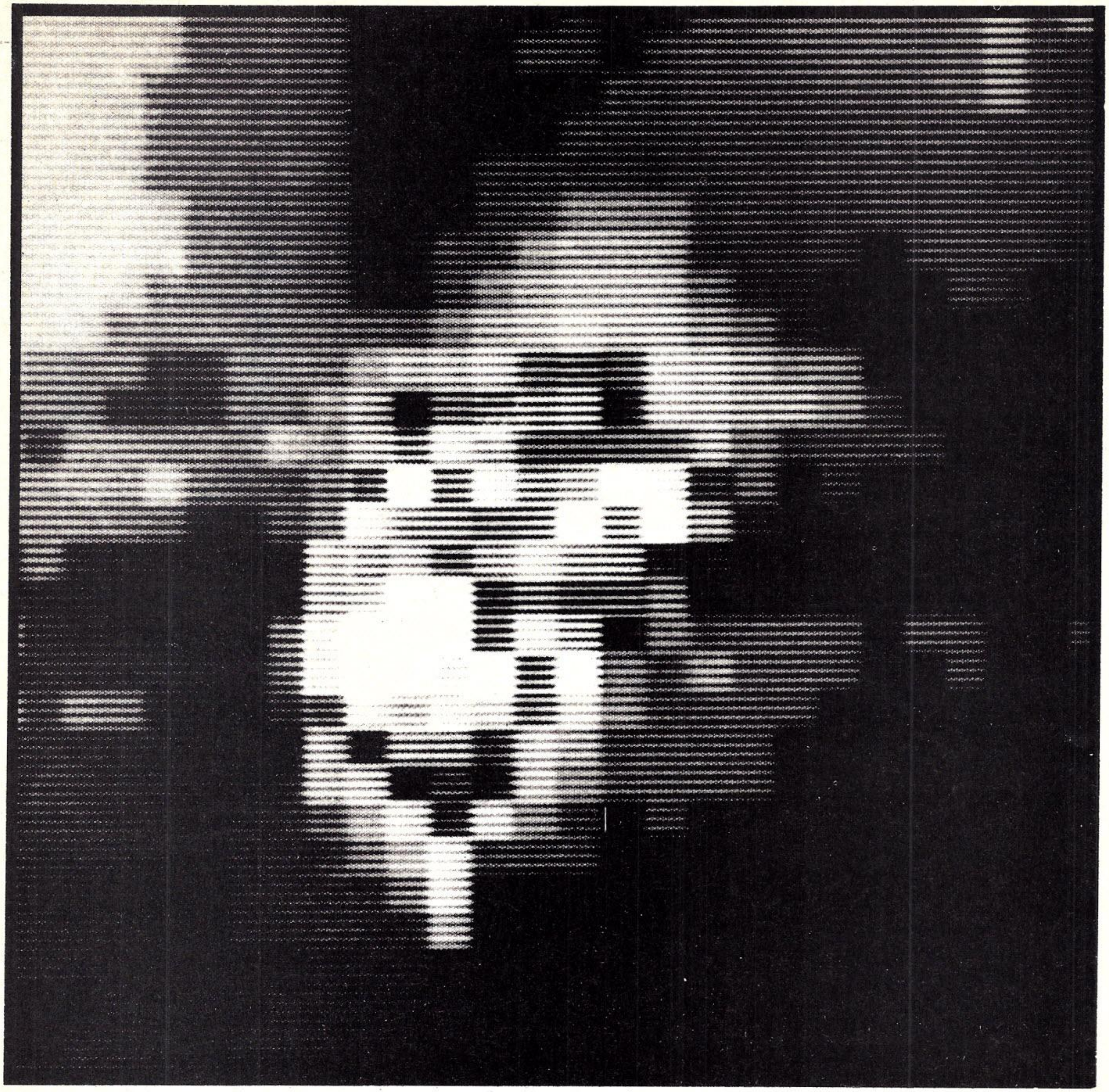
A TV personality associated with the Muppet Show is widely rumored to have resigned from the show in order to accept a high-level position at DUH/Nebrasko. He is reportedly behind the innovative ENZYME compiler, as well as an innovation never before seen in the industry: **blend coding** — an extension of hash coding — which goes **beyond** the bit level to "really mix things up".

Designed with the (dumb) user in mind, these languages are all instant, one-step, quick and easy to use. A "piece of cake," our source said. DUH/Nebrasko documentation has uniformly adopted a cookbook format. One glitch to be alert for, however: certain system parameters have to be toggled in by the user, since their values vary as a function of altitude and relative humidity.

According to our source, one of the most tempting features of the new system will be the maintenance contract. Under this contract a company truck will deliver a new computer every two weeks, along with a gallon of ice cream and selected fresh fruit (in season). The operating system cookbook contains several tantalizing recipes for serving the old system to the data processing staff or the owner's family and friends. (Leasing and rental options will not be available.)

Prices for software and storage media have not yet been established, but the company plans to come in around $2.79 a pound (in quantities of a baker's dozen). Advance orders for large quantities have reportedly been placed by MacDonald's, Howard Johnson's, and **Reader's Digest.**

At the present time, the DUH/Nebrasko sales and marketing division is pressing the engineers. They can't wait to try out their new slogan: "Can you eat IBM?"



# Computer ID

**Rotide Tseug**

As reported in the July issue of this magazine, a computerized system has been developed to identify faces from a matrix of 15 by 20 pixels using six levels of darkness (gray). Following the principles laid down in Professor Leon Harmon's description, Ysteb Selpats home-brewed a system for her SWTPC 6800 computer using an eye lens from a Baby Alive doll, three Edmund Scientific prisms, and an Erector Set mounting. A detuned CB radio (approx. channel -43.7) couples the optical components to the computer without the need for expensive A to D hardware. The results are truly astonishing. Shown here is the face of a well-known public figure scanned directly off Eyewitness News. No doubt who that is, eh? Ysteb is willing to share the plans for this imaginative device with the first five people who correctly identify the person in the image reproduced here. Send responses care of this magazine.

# Computer Laws

**Brook's Law**
Adding manpower to a late software project makes it later.

**Clarke's Third Law**
Any sufficiently advanced technology is indistinguishable from magic.

**Hoare's Law of Large Programs**
Inside every large program is a small program struggling to get out.

**Laws of Computer Programming**
1. Any given program, when running, is obsolete.
2. Any given program costs more and takes longer.
3. If a program is useful, it will have to be changed.
4. If a program is useless, it will have to be documented.
5. Any given program will expand to fill all available memory.
6. The value of a program is proportional to the weight of its output.
7. Program complexity grows until it exceeds the capability of the programmer who must maintain it.
8. Make it possible for programmers to write programs in English, and you will find that programmers cannot write in English.

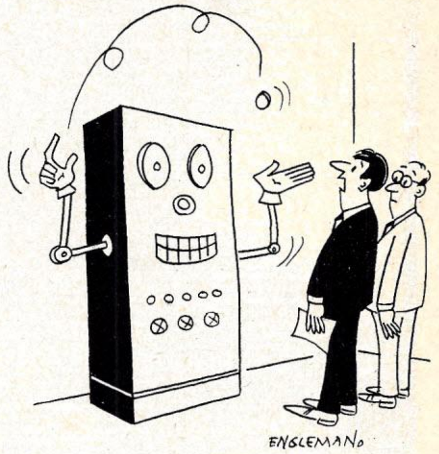
**Weinberg's Law**
If builders built buildings the way programmers wrote programs, then the first woodpecker that came along would destroy civilization.

**The Point of No Return Law**
The light at the end of the tunnel could turn out to be the headlight of an oncoming train.

**Futility Factor**
No experiment is ever a complete failure — it can always serve as a bad example.

On a clear disk you can seek forever.
SDD Song Center

Hollerith got us into this hole mess.
U.S. Census Bureau



*"I don't like the way this computer makes decisions!"*

©Creative Computing

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# I/O Deja Vu

## A Farce in One Act

**IBOX:** Hello, CACHE? I'd like the data for location 54321.

**CACHE:** I'm sorry sir. I don't have that data. Just a moment and I'll try to get it for you.

**CACHE:** Hello, MAP? I need the address for location 54321.

**MAP:** I don't have that address, sir. That address is stored at location 76543. Just a moment and I'll try to get it for you.

**MAP:** Hello, I/O control? I need the data from location 76543.

**I/O:** Just a moment. I'll try to get it.

**I/O:** Hello, CACHE? I need the data from location 76543.

**CACHE:** I don't seem to have that data, and I'm not about to get it.

**I/O:** Hello, MAP? What is the address for location 76543?

**MAP:** That address is 222543.

**I/O:** Hello, CORE? What is the data at 222543?

**CORE:** That data is INDIRECT PAGE TABLE 21, PAGE 44.

**I/O:** Hello, MAP? That data you wanted is INDIRECT PAGE TABLE 21, PAGE 44.

**MAP:** Fine. Now I need INDIRECT PAGE TABLE ENTRY 21. That will be stored at location 556. Would you get me the data at 556?

**I/O:** I'll try.

**I/O:** Hello, CACHE? I need the data from location 556.

**CACHE:** That data is 6767.

**I/O:** Hello, MAP? That data you wanted is 6767.

**MAP:** Good. Now, let's see. 6767 plus 44 is 7033. Now, get me the data at 7033.

**I/O:** Hold on.

**I/O:** Hello, CACHE? I need the data from location 7033.

**CACHE:** I'm sorry. I don't have that data. You'll have to get it from CORE.

**I/O:** Hello, MAP? I need the address for location 7033.

**MAP:** I'm sorry. I don't seem to have that address. I'll try to get it, but I'll probably forget what I was doing before, so you might as well too.

**MAP:** Hello, I/O? I'm trying to get the address for 7033. That data should be stored at location 112233. Would you get me that data?

**I/O:** (sigh) I'll try.

**I/O:** Hello, CACHE? I need the data from location 112233.

**CACHE:** That data is 4242.

**I/O:** Hello, MAP? That data you wanted is 4242.

**MAP:** I'll store that away. HEY IBOX, I just stored something.

**IBOX:** Hello, CACHE? I'd like the data for location 54321.

**CACHE:** I'm sorry sir. I don't have that data. Just a moment and I'll try. . .

Originally appeared in *Computer,* February 1975. Submitted by S. Foonly, Artificial Intelligence Laboratory, Stanford University, Stanford, CA.

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# EVEN COMPUTERS GET THE BLUES

Has your TRS-80 been sluggish lately? Slow to respond? Had excessive Keyboard bounce?

Don't blame low voltage or IRON POOR SOFTWARE. Your computer feels **used** and it's up to you, the user to **do** something about it.

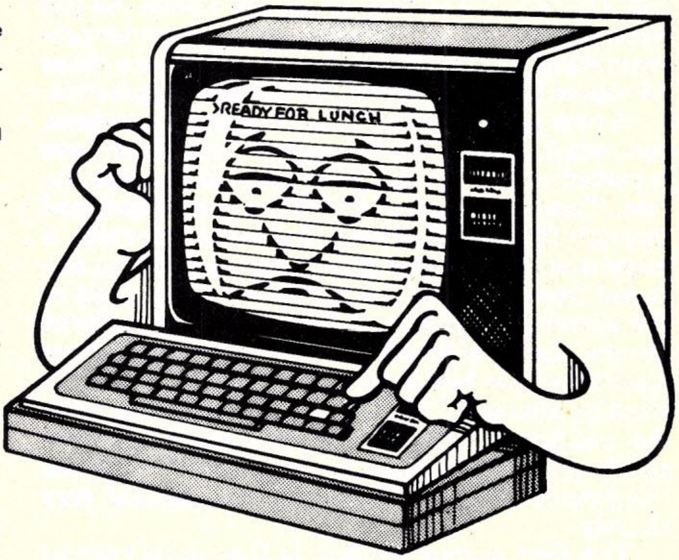
The newly-released CYBERPSYCHE Magazine goes directly to the root of your programming problems — your need to develop a **meaningful relationship** with your CPU. State-of-the-art programmers throughout the computer field have realized that little is accomplished by kicking in their CRT's or sending their programs off on endless loops. They're using CYBERPSYCHE to channel these hostilities into constructive therapy for their CPU.

*"CYBERPSYCHE helped me explain to my CPU such controversial issues as the need to delete bad memories and the historically bitter tensions between Upper and Lower Case."* Ernest Hacker, Omaha, Nebraska.

*"After subscribing to CYBERPSYCHE I felt confident when the time came to provide the appropriate handholding to my ROM during expansion of our system or after its first experience with a joystick."* Major Oem, Cupertino, California.

*"You've made programming a spiritually uplifting experience . . . WOW!"* Wimpie Nim, Mountain View, Ohio.

Software Problems? Don't waste your time with irrelevant externals such as programmer incompetency and system inadequacy. Subscribe to CYBERPSYCHE and step into **The Programming Experience.**



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# New Hobbyist Language

### James Thrig

FORTRAN, CP/M, Pascal APL, BASIC, ALGOL, COBOL... These are some of the various computer languages which have been developed over the years. Each language is, in its proper application, a superb tool. Unfortunately, all of these languages have one common fault. They were developed by and for the professional computer programmer/analyst. A recent *Business Week* article indicated that there were some half million of these professionals in the industry. However, with the introduction of the PET, Apple, TRS-80, etc. it is believed that the number of hobbyist or "weekend" programmers will soon exceed that of the professionals. In spite of the rapidly growing population of this new breed of programmer, no one has yet developed a programming language oriented to the unique requirements of the home/hobbyist marketplace. This article will describe the basic (no relationship intended) structure of a new family of languages needed to meet the special needs of the so called weekend programmer.

Although the term "weekend" programmer sounds derogatory, this new generation of programmer has developed and will continue to develop quite sophisticated special application programs. The label "weekend" is simply used to convey the fact that these programmers are not full time "professional" computerists. Rather, the weekender is one who uses the computer as a work tool, educational or entertainment device. As the weekender is not formally trained in computer programming, his language needs differ from those who have had formal programming backgrounds.

A new generation of programming languages, generically called Anticipatory Languages, are expected to appear in the market in the near future. These languages will have been developed through the use of extensive market research. A large number of focus groups (controlled rap sessions) have brought out the major drawbacks of the current languages. Additionally, these focus groups along with several special surveys have pinpointed the key common elements that are desired by almost all weekend programmmers. With the market for these new languages reaching nearly a quarter million users, it is expected that the first of these new languages will appear very shortly.

The first survey finding is that most current users have already learned to "almost master" BASIC which is by far the single most (by default) popular weekender language. The major problem with BASIC for these programmers is that they quite often forget exactly what a command does. Often these users spend hours tracing down (debugging in professionalese) a rather dumb error caused by infrequent use of particular commands. Rather than force these current users to start from scratch with another langage, the first Anticipatory Language will allow current users to use whatever BASIC commands they want. A set of anticipatory commands will supplement their BASIC directive commands. As essentially a BASIC enhancement, this first langage will be called BASIC Operating Technics of Computer Hobbyists..... BOTCH

While the final command set for BOTCH is not yet finalized the following is a sampling of those known commands that will be included. Their description will demonstrate why this new set of anticipatory languages will quickly become a standard for the weekender. In fact, I wouldn't be surprised to see the professional segment begin to use these languages as well.

**RUBE GO(BERG)**

RUBE, when used as the first statement in the program allows you, the programmer, to enter program steps in a random fashion. No longer is it necessary to determine the flow of a program prior to entering it into the computer. At execution time simply type RUN GO(BERG), filename. RUBE GO(BERG) will determine the correct flow in your program to provide you with the correct results.

**FOR EIGN**

FOR EIGN can be used by the weekender, but will probably be most appreciated by those who have had previous programming experience in non Microsoft BASIC languages. Running a program under FOR EIGN control will allow you to use any statements from any language without conflict. Now you can type in DO loops with FOR/NEXT loops. With FOR EIGN you never have to think what language you are programming in, you can use any and all commands ever invented.

**NOERROR**

NOERROR will replace the ON ERROR GOTO statement found in many current BASICs. ON ERROR GOTO requires programmer to think of what type error may occur and try to catch it. NOERROR commands the CPU to not accept any error. If an error should occur NOERROR will determine its cause, correct it, and rerun the program correctly.

**DO WHATIWANT**

Many weekenders know what they want to accomplish in their program, but often run into difficulty in explicitly stating their objectives in correct code. DO WHATIWANT will eliminate these problems forever. If you should find that your program doesn't provide you with what you thought you asked for, simply rerun the program under the DO WHATIWANT option. The computer will then prompt you for some added information. After telling the computer what you want, it will rerun the program in accordance with your desires rather than the program code you had proviously entered.

## C LONE

This feature will be included in an advanced version of BOTCH. The software is currently being developed, but as of yet, no one has been able to build the hardware interface necessary. C LONE is a new input routine. Most personal computers today use the CLOAD type command to read programs or data from a cassette tape player. C LONE will operate in a similar fashion but will provide a much faster method to write a program. C LONE will accept input directly from the user. Using an EEG (electroencephalogram) signal from the user's brain, C LONE will READ the users thoughts, and via the C LONE interpreter will convert these to usable programmed code.

As can be seen from the sampling above, this new family of languages should allow the weekender to be able to BOTCH programs with the same high quality results as that of the professional. Watch for it at your local computer store.

---

```
                            OVEREXTENDED MNEMONICS

AME  407 EMULATION                      PAZ  PACK ALPHA AND DROP ZONES
ARN  ADD AND RESET TO NON-ZERO          PBC  PRINT AND BREAK CHAIN
BB   BRANCH ON BUG                      PI   PUNCH INVALID
BBI  BRANCH ON BURNED-OUT INDICATOR     PO   PUNCH OPERATOR
BCF  BRACH ON CHIP BOX FULL             PPSW PACK PROGRAM STATUS WORD
BD   BACKSPACE DISK                     PS   PRINT AND SMEAR
BPO  BRANCH ON POWER OFF                RBT  READ BLANK TAPE
BSC  BRUST SELECTOR CHANNEL             RCR  REWIND CARD READER
BSO  BRANCH ON SLEEPY OPERATOR          RCS  READ CARD AND SCRAMBLE DATA
BTI  BLOW TRUMPET IMMEDIATELY           RD   REMOVE DISK
CCS  CHINESE CHARACTER SET              RDI  REVERSE DRUM IMMEDIATELY
CM   CIRCULATE MEMORY                   RID  READ INVALID DATA
CRN  CONVERT TO ROMAN NUMERALS          RIG  READ INTER-RECORD GAP
DAC  DIVIDE AND CONQUOR                 RBT  REWIND AND BREAK TAPE
DD   DESTROY DISK                       RNR  READ NOISE RECORD
DIA  DEVELOP INEFFECTIVE ADDRESS        ROM  READ OPERATOR'S MIND
DO   DIVIDE AND OVERFLOW                RPM  READ PROGRAMMER'S MIND
DPK  DESTROY STORAGE PROTECT KEY        RPB  READ PRINT AND BLUSH
ECP  ERASE CARD PUNCH                   RRR  READ RECORD AND RUN AWAY
ED   EJECT DISK                         RT   REDUCE THRUPUT
EIO  EXECUTE INVALID OP-CODE            SC   SCRAMBLE CHANNELS
EROS ERASE READ-ONLY STORAGE            SD   SLIP DISK
FSG  FILL SCREEN WITH GARBAGE           SLP  SHARPEN LIGHT PENCIL
FSR  FORMS SKIP AND RUN AWAY            SP   SCATTER PRINT
HCF  HALT AND CATCH FIRE                SPSW SCRAMBLE PROGRAM STATUS WORD
IA   ILLOGICAL AND                      SRSD SEEK RECORD AND SCAR DISK
II   INQUIRE AND IGNORE                 SSC  SELECT READER AND CHEW CARDS
IOR  ILLOGICAL OR                       SSJ  SELECT STACKER AND JAM
IRB  INVERT RECORD AND BRANCH           TAB  THROW AWAY BYTE
LCC  LOAD AND CLEAR CORE                TPD  TRIPLE-PACK DECIMAL
LMB  LOSE MESSAGE AND BRANCH            TPN  TURN POWER ON
MC   MOVE CONTINUOUS                    TPO  TURN POWER OFF
MLB  MEMORY LEFT SHIFT AND BRANCH       UCB  UNCOUPLE CPU AND BRANCH
MLR  MOVE AND LOSE RECORD               UER  UPDATE AND ERASE RECORD
MTI  MAKE TAPE INVALID                  UT   UPDATE TRANSACTION
MWC  MOVE AND WARP CORE                 WLR  WRITE WRONG-LENGTH WORD
NC   1401 INCOMPATABILITY               WNR  WRITE NOISE RECORD
NPN  NO PROGRAM NECESSARY               XOH  EXECUTE NO-OP AND HANG

CREATIVE COMPUTING MAGAZINE, APRIL 1980
```

# Lust

```
5 REM                   TA! DA!
10 REMARKABLY DISTORTED BY ME!
15 FILEV#1:"LPT:"
20 DIM A$(65)
25 DIM T$(120,1)
50PRINT"YOUR MESSAGE PLEASE "
55 INPUT A$
60 L=LEN(A$)
65 FOR R=1 TO 14 \ PRINT#1: \ NEXT R
70 FOR J=0 TO INT(60/L)
75 FOR I=1 TO L
80 T$(J*L+I)=SEG$(A$,I,I)
85 NEXT I
90 NEXT J
95 C=0
100 A1=1 \ P=1 \ C=C+1 \ IF C=37 THEN 200
105 PRINT#1:
110 READ A \ IF A>100 THEN 100 \ A1=A1+A \ IF P=1 THEN 120
115 FOR I=1 TO A \PRINT#1:" "; \ NEXT I \ P=1 \ GOTO 130
120 FOR I=A1-A TO A1-1 \PRINT#1:T$(I); \ NEXT I \ P=0
125 P=0
130 IF A1>60 THEN 100 \ GOTO 110
135 DATA 60,1,12,18,12,5,10,2,3,8,22,8,9,6,4
140 DATA 4,6,24,6,11,4,5,4,6,24,6,11,4,5
145 DATA 4,6,24,6,11,4,5,4,6,24,6,11,4,5
150 DATA 4,6,24,6,11,4,5,4,6,24,6,11,4,5
155 DATA 4,6,24,6,11,4,5,4,6,24,6,11,4,5
160 DATA 4,6,19,1,4,6,11,4,5,4,6,19,1,4,7,9,5,5
165 DATA 4,6,18,2,4,7,9,5,5,4,6,17,3,5,19,6
170 DATA 3,8,14,5,5,19,6,1,29,6,17,7,1,29,13,5,12
175 DATA 4,55,1,3,56,1,2,4,22,4,9,7,9,2,1
180 DATA 2,3,24,2,10,7,10,1,1,2,3,24,2,10,7,10,1,1
185 DATA 2,4,35,7,12,2,24,15,7,12,2,25,14,7,12
190 DATA 3,25,13,7,12,4,25,12,7,12,1,1,20,7,12,7,12
195 DATA 1,1,21,6,12,7,12,1,2,20,6,12,7,12
196 DATA 1,4,17,7,12,7,12,1,27,13,7,12,1,26,11,13,9
197 DATA 1,25,10,17,7,60
198 DATA 5000
200 PRINT#1: \ PRINT#1:PNT(12)
205 CLOSE#1
206 RESTORE
207 INPUT D$
208 IF D$="Y" THEN 5
210 END
```

```
LUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUST
L            USTLUSTLUSTLUSTLUS            TLUST          ST
LUS        TLUSTLUSTLUSTLUSTLUSTL        USTLUSTLU      LUST
LUST      STLUSTLUSTLUSTLUSTLUSTLU      LUSTLUSTLUS    TLUST
LUST      STLUSTLUSTLUSTLUSTLUSTLU      LUSTLUSTLUS    TLUST
LUST      STLUSTLUSTLUSTLUSTLUSTLU      LUSTLUSTLUS    TLUST
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LUST      STLUSTLUSTLUSTLUSTL STLU       USTLUSTLU     TLUST
LUST      STLUSTLUSTLUSTLUST  STLU       USTLUSTLU     TLUST
LUST      STLUSTLUSTLUSTLUS   STLUS                   STLUST
LUS        TLUSTLUSTLUSTL     STLUS                   STLUST
L                             STLUST                 USTLUST
L                             STLUSTLUSTLUS     LUSTLUSTLUST
LUST                                                       T
LUS                                                        T
LU    STLUSTLUSTLUSTLUSTLUST    LUSTLUSTL       LUSTLUSTL  T
LU   USTLUSTLUSTLUSTLUSTLUSTL  TLUSTLUSTL       LUSTLUSTLU T
LU   USTLUSTLUSTLUSTLUSTLUSTL  TLUSTLUSTL       LUSTLUSTLU T
LU    STLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTL       LUSTLUSTLUST
LU                        STLUSTLUSTLUSTL       LUSTLUSTLUST
LU                         TLUSTLUSTLUSTL       LUSTLUSTLUST
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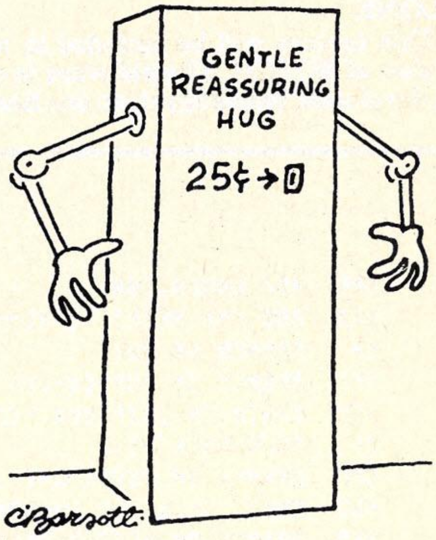
LUST                         USTLUSTLUSTL       LUSTLUSTLUST
L STLUSTLUSTLUSTLUSTLU       USTLUSTLUSTL       LUSTLUSTLUST
L STLUSTLUSTLUSTLUSTLUS      USTLUSTLUSTL       LUSTLUSTLUST
L  TLUSTLUSTLUSTLUSTLUS      USTLUSTLUSTL       LUSTLUSTLUST
L    USTLUSTLUSTLUSTLU       USTLUSTLUSTL       LUSTLUSTLUST
L                           LUSTLUSTLUSTL       LUSTLUSTLUST
L                          TLUSTLUSTLU             TLUSTLUST
L                         STLUSTLUST                 USTLUST
LUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUSTLUST
```



## J.H. LEICHMAN

This little gem is based on Dave Ahl's LOVE program which appeared oh-so-long ago.
Apologies to Robert Indiana

line 5 is absurd - change it

line 15 assigns the lineprinter to output device #1

line 20 sets string length of A$ to 65 characters

line 25 defines 120 strings of length 1 character each

line 80 : SEG$ (A$, I,I) defines a substring in A$ starting at I and ending at I — many systems use MID (A$,I,1)

lines 95 to 130 are pretty much garbled - but they work

line 200 : PNT(12) causes a top of form to be printed

line 207 needs a prompt of some sort

line 208 should probably transfer control to line 15

# Ask Me A Riddle

### by Lemmik Evets

Here is one of the most sophisticated games ever programmed on any computer. This is no mere Adventure game or Super Invader or Extended Star Trek. No indeed, this is a game that can be comprehended by only the very highest anointed ones of the inner computer hacker profession. DO NOT use this program with your friends who are mere computer enthusiasts. It is well beyond their comprehension. DO NOT show it to mere PL/I, COBOL and LISP programmers. It will confuse them. DO NOT show it to your Polish, Black, Chinese, WASP, Arab, or Jewish friends. It is far too complex for those people to master. In general, it will be best if you keep this program to yourself. Use it as often as you wish, but do not expect others to appreciate it as you do.

Here is a starting riddle for you to enter. "How high is a mouse when it spins?" Answer: "The higher, the fewer."

```
 10 REM RIDDLE PROGRAM
 20 CLS: CLEAR 200
 30 PRINT "ASK ME A RIDDLE..."
 40 INPUT Z$
 50 IF RND(2)=2 THEN PRINT "GEE...  THAT'S A TOUGH ONE."
 60 PRINT "I'M THINKING..."
 70 FOR I=1 TO 2000:NEXT I
 80 PRINT "I GIVE UP."
 90 PRINT Z$:INPUT Z$
100 FOR I=1 TO 1000:NEXT I
110 FOR J=1 TO 10
120 FOR I=1 TO 50:PRINT@RND(1020),"HA!";:NEXT I
130 FOR I=1 TO 20:PRINT@RND(1020),"HEE-HEE";:NEXT I
140 FOR I=1 TO 10:PRINT@RND(960),"HO-HO";:NEXT I
150 NEXT J
160 PRINT@960,"THAT WAS A GOOD ONE..."
170 FOR I=1 TO 13: PRINT: NEXT I
180 PRINT@128,"TELL ME ANOTHER ONE!"
190 GOTO 40
```

**REAL, STOP-THE-PRESS BARGAIN !**

**WHAT DO WE DO WITH THIS ONE??**

When we first saw this "watsit" piled up in the factory warehouse we were so taken by the workmanship and ingenuity of the item that we — talked ourselves into buying all 150 of them. Brand new — still packed in the foam export packing and complete with spare rollers and parts. The closest we can guess is that it is a photocopier paper feed assembly. We were told that it may have been manufactured in Germany by a company called Matt Barley and possibly have been intended for copy machines by Copystatics or Saxon. There is no doubt that these must have cost someone $300 each. A complete network of rollers, plattens, gears, belt drive, ink (or toner) reservoir, guide fingers, clutches, cams and much more. If you repair copy machines or build paper feed mechanisms — at least one of these is a must — if for nothing else than the parts. Seems that the unit is capable of feeding paper from rolls up to 10" wide. That about all we can tell you about it... we invite your order. (23 lbs.) **318SU.**

OVERALL DIMENSIONS 14" X 6-3/4" X 7-3/4"

WEIRD ! WEIRD !

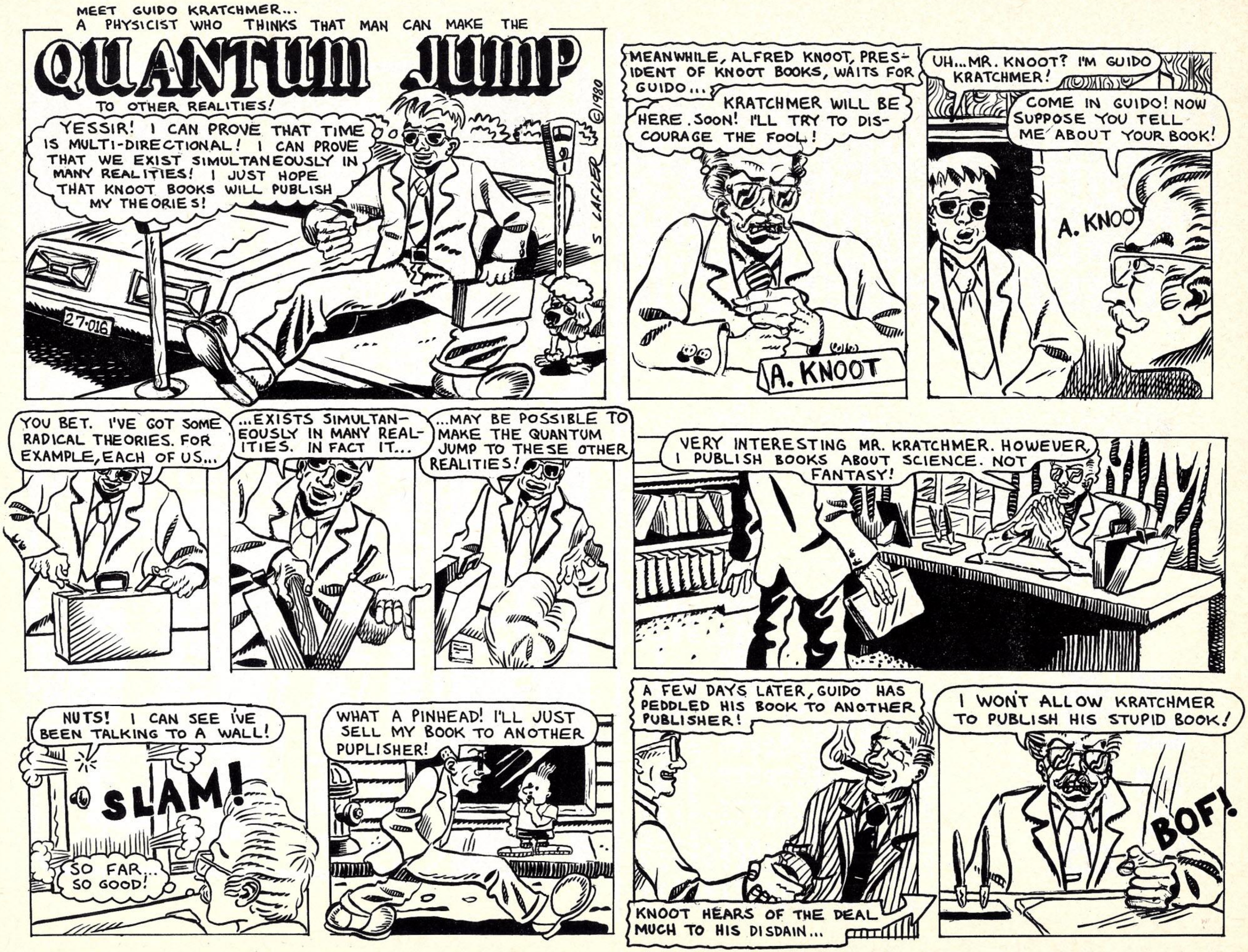
MAKE A LAMINATING MACHINE

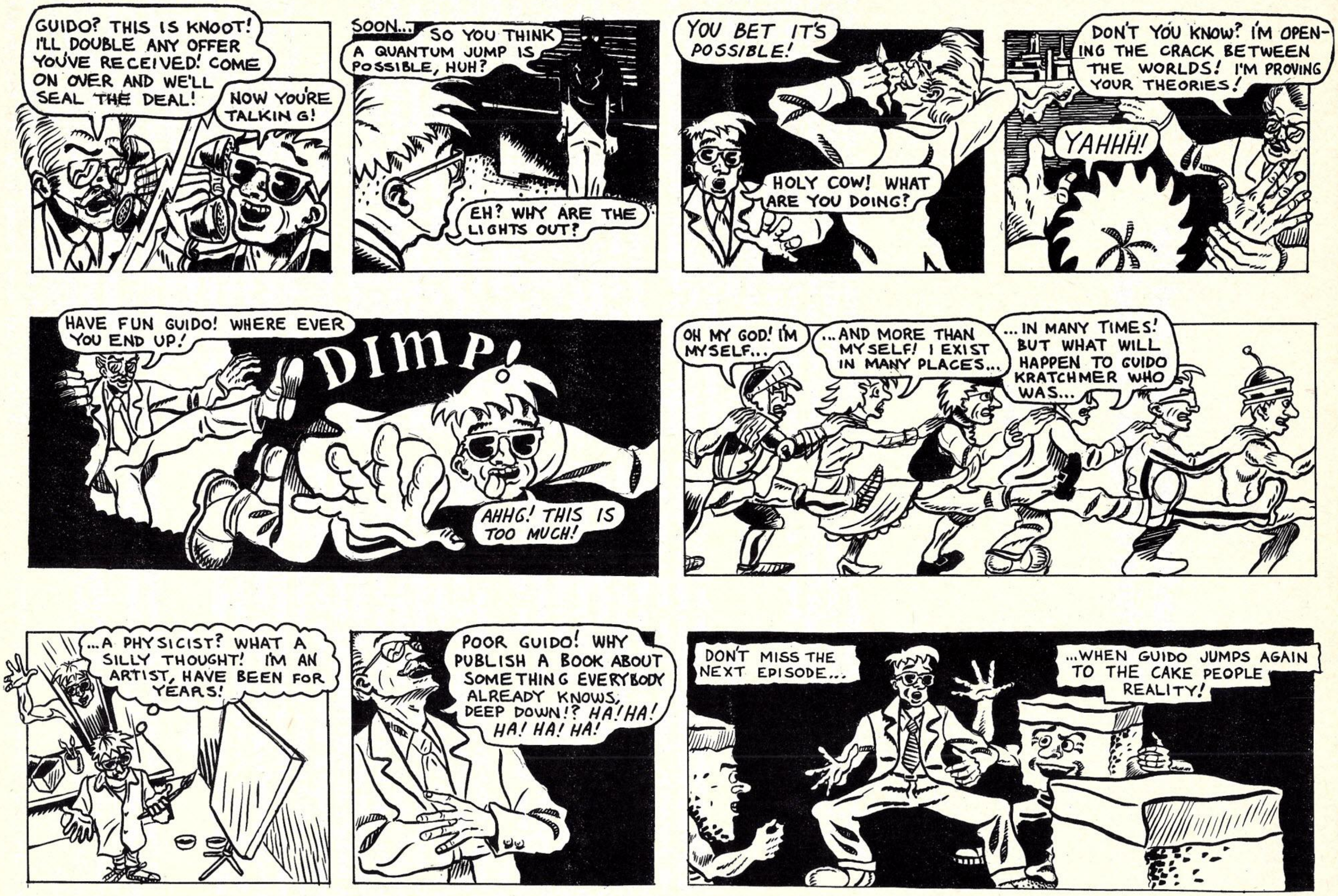
ONLY 19.95 WAS 29.95 IN "AA" CATALOG

Sold Out to ETCO

PROBABLY BECAUSE NO ONE ELSE WOULD BUY THEM !

**NEWS FLASH**
A customer informs us that these could be for REMINGTON No. 160 offset printing presses )


MEET GUIDO KRATCHMER... A PHYSICIST WHO THINKS THAT MAN CAN MAKE THE
QUANTUM JUMP
TO OTHER REALITIES!
YESSIR! I CAN PROVE THAT TIME IS MULTI-DIRECTIONAL! I CAN PROVE THAT WE EXIST SIMULTANEOUSLY IN MANY REALITIES! I JUST HOPE THAT KNOOT BOOKS WILL PUBLISH MY THEORIES!
S LAFLER ©1980
27·016
MEANWHILE, ALFRED KNOOT, PRESIDENT OF KNOOT BOOKS, WAITS FOR GUIDO...
KRATCHMER WILL BE HERE. SOON! I'LL TRY TO DISCOURAGE THE FOOL!
A. KNOOT
UH...MR. KNOOT? I'M GUIDO KRATCHMER!
COME IN GUIDO! NOW SUPPOSE YOU TELL ME ABOUT YOUR BOOK!
A. KNOO
YOU BET. I'VE GOT SOME RADICAL THEORIES. FOR EXAMPLE, EACH OF US...
...EXISTS SIMULTANEOUSLY IN MANY REALITIES. IN FACT IT...
...MAY BE POSSIBLE TO MAKE THE QUANTUM JUMP TO THESE OTHER REALITIES!
VERY INTERESTING MR. KRATCHMER. HOWEVER, I PUBLISH BOOKS ABOUT SCIENCE. NOT FANTASY!
NUTS! I CAN SEE I'VE BEEN TALKING TO A WALL!
SLAM!
SO FAR... SO GOOD!
WHAT A PINHEAD! I'LL JUST SELL MY BOOK TO ANOTHER PUPLISHER!
A FEW DAYS LATER, GUIDO HAS PEDDLED HIS BOOK TO ANOTHER PUBLISHER!
KNOOT HEARS OF THE DEAL MUCH TO HIS DISDAIN...
I WON'T ALLOW KRATCHMER TO PUBLISH HIS STUPID BOOK!
BOF!


GUIDO? THIS IS KNOOT! I'LL DOUBLE ANY OFFER YOU'VE RECEIVED! COME ON OVER AND WE'LL SEAL THE DEAL!
NOW YOU'RE TALKING!
SOON...
SO YOU THINK A QUANTUM JUMP IS POSSIBLE, HUH?
EH? WHY ARE THE LIGHTS OUT?
YOU BET IT'S POSSIBLE!
HOLY COW! WHAT ARE YOU DOING?
DON'T YOU KNOW? I'M OPENING THE CRACK BETWEEN THE WORLDS! I'M PROVING YOUR THEORIES!
YAHHH!
HAVE FUN GUIDO! WHERE EVER YOU END UP!
DIMP!
AHHG! THIS IS TOO MUCH!
OH MY GOD! I'M MYSELF...
...AND MORE THAN MYSELF! I EXIST IN MANY PLACES...
...IN MANY TIMES! BUT WHAT WILL HAPPEN TO GUIDO KRATCHMER WHO WAS...
...A PHYSICIST? WHAT A SILLY THOUGHT! I'M AN ARTIST, HAVE BEEN FOR YEARS!
POOR GUIDO! WHY PUBLISH A BOOK ABOUT SOMETHING EVERYBODY ALREADY KNOWS, DEEP DOWN!? HA! HA! HA! HA! HA!
DON'T MISS THE NEXT EPISODE...
...WHEN GUIDO JUMPS AGAIN TO THE CAKE PEOPLE REALITY!

# Behavior Modification And The Teaching of English Composition

**Harley L. Sachs**

*(This is the report of an Experiment at Midwest Technological University Conducted by Professor Harley Sachs, English Department and Adolph S. Gruber, Professor at Large).*

## SUMMARY

In response to the national concern for correct English, and faced with an enrollment of students less and less able to express themselves, Professors Sachs and Gruber were awarded an NEF grant of $100,000 to design a program which would make significant changes in ungrammatical behavior at Midwest Technological University. The program rose partly out of a complaint that graduates could not write or express themselves. This was particularly true of engineering students, but the weakness turned up among all majors and even in graduates from the English Literature program.

Using a computer program developed by Prof. Sachs and laboratory carrels modified by Prof. Gruber, approximately two thirds of the freshperson class underwent behavior modification. One third, the control group, received normal instruction in English composition in the usual classes of forty students per T.A., writing not less than two 100 word themes per semester. At the conclusion of the experiment, the behavior mod, or BM group, showed significantly superior grammatical behavior while the control group showed very little progress. Certain aberrations did appear in the BM group and there were several incidents which lead to the subsequent disappearance of Prof. Gruber, but it is felt that these do not in any way affect the statistical significance and reliability of the experiment or its method.

## THE PROBLEM

The first report of Mid-Tech graduates being unable to communicate was revealed at a cocktail party attended by a number of visiting job interviewers and Prof. Gruber. Prof. Gruber overheard a peculiar conversation between the personnel manager for Acme Acne, a midwestern cosmetics manufacturer, and one of his employees, a recent graduate in Chemistry and Business Administration from Mid-Tech. When asked a question, the Mid-Tech graduate answered only "true" or "false." Prof. Gruber, curious, entered the conversation and discovered that the ex-student, when pressed for details, was able to reply, "One, two, three, four," or simply, "none of the above." If not given choices he stood mute.

Prof. Gruber's professional concern for language has arisen, perhaps, from the fact that he is German born and was drilled in grammar at an early age. This explains his concern, even though his education is in military history and social sciences with an astrology minor. Nevertheless, he brought the peculiar language patterns of the Mid-Tech graduate to Prof. Sachs's attention and an investigation revealed that the Mid-Tech professors outside the English department had universally adopted a testing and report writing method that required students to do all their homework by filling in, in pencil, the little spaces on machine scorable tests for answers "1,2,3,4 or none of the above."

Aware of the NEF grant program for English improvement, Prof. Sachs and Prof. Gruber immediately set about with a grant proposal. It was funded.

## DESCRIPTION OF THE EXPERIMENT

Midwest Technological University has a well-equipped language lab which has carrels using cathode ray tubes (CRT's) and light pencils that allow a student to make corrections and revisions to sentences and paragraphs displayed on the screens. A computer program evaluates each answer. If the student is correct, he is permitted to go on to the next problem. If incorrect, he is required to go back to the appropriate early stage and repeat that training before he may proceed. This programmed instruction is standard.

What Professor Gruber designed was a reward system which would motivate the students to do better work. A survey of preferences for rewards among college Freshpersons at Mid-Tech showed that three rewards were preferred. The first was sex, the second marijuana, and the third alcohol. It was easy enough to program the computer to

---

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Harley L. Sachs, 2242 SW Vermont, Portland, OR 97219

provide color CRT peep shows according to the sexual preference of the student. Upon giving the right answer, the student would be rewarded with a five second segment of a pornographic film which would not continue until the next problem in English grammar was answered correctly. Professor Gruber was unable to obtain a permit to use marijuana and had doubts that the smoke could be confined to each carrel. To blow a puff of smoke in the face of the student with the right answer was easy enough, but some students might have allergies, and the fire extinguishing system in the language lab is smoke activated. This reward was therefore abandoned. An alcohol dispenser was built into eight carrels, providing a shot of beer for each correct answer. On Prof. Sachs' suggestion, the third choice of reward was red hots, small spicy red candies easily dispensed by apparatus borrowed from Skinner boxes in the biology lab. Prof. Sachs preferred red hots to sex or alcohol himself, and admits to falling prey to his own weakness in choosing this third choice of reward, but the results of the experiment prove that this was not an unsuitable choice, even though it did cause an incident late in the second semester of the experiment.

## FIRST STAGE OF THE EXPERIMENT

The news of the experiment spread quickly on the Mid-Tech campus and it proved so popular that most of the students in the control group tried to transfer out of their sections and get into the experiment. It became necessary to issue keys and badges to admit only the experimental group to the special carrels in the language lab. English was never so popular at Mid-Tech as it was during the first semester.

However, there were some flaws. Some students discovered that wrong answers sent them back to earlier questions, but that subsequent answers to easy questions they knew got fresh rewards. One or two were caught deliberately recycling the same low level questions. This error was corrected and edited out of the statistical tables (see APPENDIX).

However, Prof. Gruber was not satisfied with the results. It is well known in the academic world that the most popular teacher is not always the best teacher, and this proved true in the Sachs-Gruber experiment as well. Students seemed to enjoy English, it is true, but they did not do significantly better on the post test than those in the control group. Their performance, while improved, was not statistically significant. This prompted Prof. Gruber's redesign of the carrels for the second stage.

## SECOND STAGE OF THE MID-TECH EXPERIMENT

Prof. Gruber, drawing on his German background, decided that success in the experiment depended on a NIETZSCHEN application of the pleasure/pain principle. Each carrel was subsequently modified further so that students who gave the wrong answers would receive mild electric shock. For the second phase of the experiment, then, a student would follow this procedure: He/She would enter the language lab, present ID badge and key, and be permitted to sit in a carrel. For the sake of economy, no carrel had all three rewards built in. Students were obliged to choose between a sex, beer, or candy carrel. An attendant, usually a work-study student, would then attach electrical contacts to the ankles of the subject. If the electrical circuit were broken, the lesson would be discontinued immediately.

The student would type into the computer terminal the appropriate codes and the CRT would turn on with the appropriate lesson depending on how far the student had progressed. A short review period without reward or punishment preceded the continuation of the lesson. If the student answered the questions correctly, he/she was rewarded. If the answers were wrong, he/she would not only have to go back to an earlier stage, but would receive a mild electric shock.

It was at this point that a lack of communication between Prof. Sachs and Prof. Gruber developed. Prof. Sachs has certain well-known pet peeves. Students who spell "writing" with two t's, or think "a lot" is one word regularly receive failing marks. Comma splices and errors in agreement have caused many English professors dyspepsia and, if allowed to continue for long periods, even peptic ulcers. These errors caused hypersensitive Prof. Sachs to program the computer for severity: multiple shocks. What he did not know was the Prof. Gruber had begun to exhibit certain tendencies which might be regarded as sadistic. He increased the voltage of the punishment program, making the punishments sequentially more severe by the square of the voltage.

At about this time certain unanticipated side effects occurred. A student who had selected red hots as his reward became addicted to them. Because Prof. Sachs had purchased all the locally available red hots for use in the experiment (and for his own consumption), the addicted student could obtain them only by giving right answers in English. He completed his lessons in the language lab ahead of schedule only to find himself addicted and unable to satisfy his craving. He was found in Prof. Sachs' office unconscious, having broken in, burglarized the filing cabinet where the candy was kept, and having taken an overdose. He was hospitalized, put on a withdrawal program, but was forced to quit school.

Several male students who had mistakenly punched in the wrong codes (Prof. Sachs insists it was deliberate) on the sex track became abnormally fascinated with the pornography segments designed for coeds. By the time they had completed their English behavior modification course they had been modified into trans-sexuals, causing a furor in the athletic program, as one of the students was the star center on the hockey team and refused to use the men's locker room. Parents and fans complained and the center's fianceé filed a law suit against Mid-Tech for alienation of affection.

Other students who successfully completed the English language BM course became alcoholics, a malady fairly common on the campus, but nevertheless undesirable.

The worst side effect and the one that caused the abrupt cancellation of the experiment was the electrocution of two students whose ACT scores in English should have warned Prof. Sachs that they were bound to commit numerous comma splices, errors in agreement, and to spell writing with two t's. Prof. Gruber's progressively severe punishments proved too much for their constitutions. It was an unfortunate combination.

Before Prof. Gruber could be detained for questioning, he disappeared. It was learned that he had drawn $75,000 from the experiment's NEF account and is believed to have fled to Argentina where he is known to have relatives. He is still at large.*

Prof. Sachs was left to complete the findings on his own and to prepare this report. He disclaims all responsibility for the deaths of the two students and can prove statistically that, in a sample of 750 students, the deaths of two are not significant. The transsexual conversions, alcoholism, and addiction to red hots he finds regrettable, but "just one of those minor things that go wrong. They can be designed out of the next phase of the experiment. I'm applying for another grant."

## CONCLUSIONS

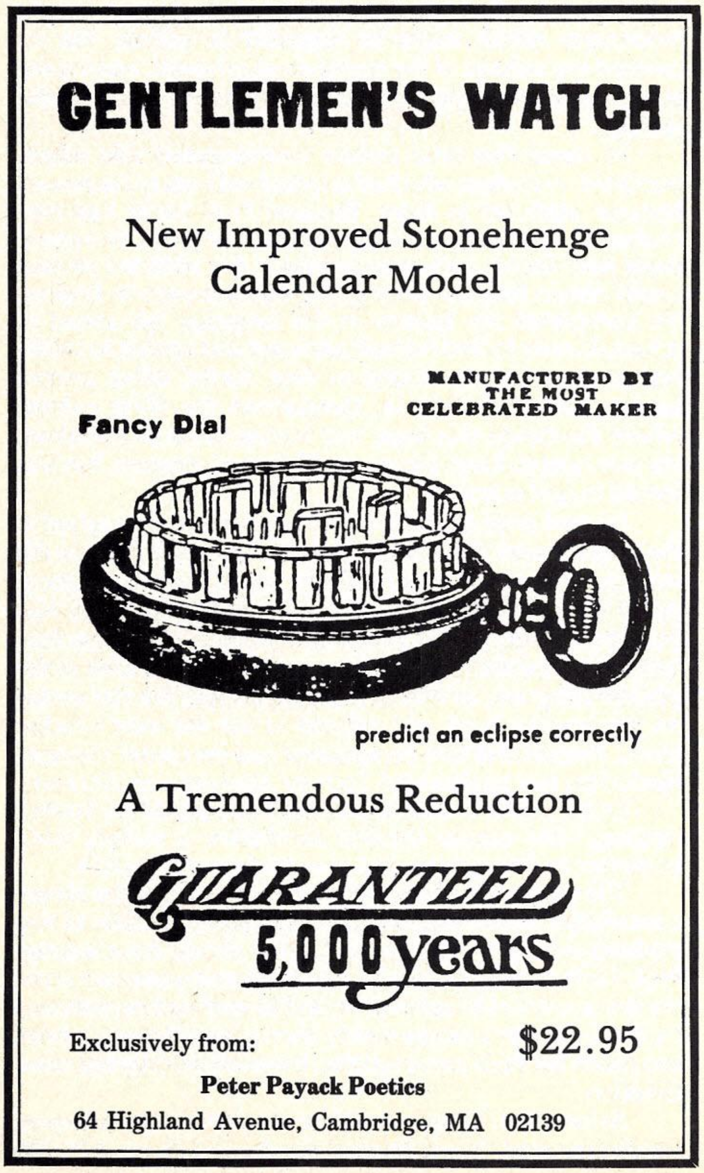
The combined use of pleasure/pain, reward/punishment in the language lab has a great future, if applied with caution. The experience at Mid-Tech shows that students can be taught answers other than true-false or one, two, three, four, or none of the above. They can be taught to recognize and correct errors in grammar and spelling and can even be taught the correct use of semicolons. With care, some may learn that "a lot" is not one word. Behavior modification allows students to progress at their own pace, to choose their own rewards, and to learn. Additional programs may teach them how to write essay answers, themes and even technical reports. The future is bright for the professor who is willing to do a little experimenting.

## FURTHER RESEARCH

The Mid-Tech experiment suggests further analysis, including the long term effectiveness of the rewards. How many correct responses in a single session are optimal; when does the number of shots of beer impair behavior? how long do subjects retain interest in porno flicks? do red hots in large quantities cause cancer? how much electric shock is enough? too much? Grant proposals on these subjects may be expected, and one of them may well earn the Proxmire "Golden Fleece' award.

---

*Prof. Gruber took the data with him, hence no APPENDIX. (Sorry).



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# Man Bytes Computer

### Philip Hughes

Display, CPU, how a softwere redes
his matrices, paths, and minimax moves.

READ

Yea, though I scan through an array of
random limited response options
I shall prioritize no retrodigms
for my loops are all expedoable,
and cyberment-tabulated rasa
shall megaboost multicope capax.

LOAD

With parameters wide, interface broad,
let my cogito sum, my ego erg:
nanosec mentronics, on a knowlark spree
(yet duly constrained by culturplex sync).

NEST DO LOOPS

Put through thy thruput, compile thy therbligs,
clearscan hyperfect thy daily data
and thou canst not then print false to any man,
Attend to the inwhack and nearfetched.
Look to the glitches and let the shut-downs
take care of themselves. Be wired, boy, be wired.

FILE

Oh, what a noble programming is mine,
in core storage how rich, in execution how fleet.
Pray you: just press this button.

PRINT BOTTOM LINE

--The proper study of mindken is canned.--

# Horrendous Hardware Introduces CompuCar

Kirk Niatpac

We recently had a chance to review the CompuCar, an exciting new extraordinary amazing fantastic new product made by Horrendous Hardware. (Disclaimer: Any relationship with a division of This Magazine is purely coincidental and this review should be misinterpreted as an example of abuse of editorial power. —Ed.) Originally we had planned to do a Battle of the CompuCars but we only had one so there was no point. Anyway the only reason the review was written was to pay for the CompuCar itself, and by stretching this review out long enough we can up the word count enough to get some decent money.

The CompuCar is not really a car but instead a special computer that fits inside your car in a sort of cooperative symbiosis. For the test we had it installed in a member of the staff's Volkswagen Microbus (circa 1968) which had already been slightly modified to accomodate the engine from a Porsche Turbo. We felt that the microbus would allow for the cleanest installation since it had enough room for the fully expanded version of the CompuCar. It was felt that the small underdash units do not offer any real capability and are just toys no better than a video game.

**Installation**

Installation took every weekend of two months but as you can easily see it was worth every minute of it. The CompuCar takes up most of the interior of the microbus (see Photo 1) and looks a little disorganized but in fact this is just the external corporal representation of its virtual and metaphysical internal hyperintensive structure. A rack mount version is available for those small minds to whom the aesthetics of externalities are important, but purists will favor the more straightforward installation.

In our particular case, we felt that securing the hardware was of utmost importance. Our initial failure to do so resulted in a minor problem in one jackrabbit start when the insufficiently secured CompuCar hardware created a new opening in the rear of the vehicle. Ensuing damage to the hardware itself was suprisingly minimal, but repair to the Volkswagen and the truck behind us cost $7,000.

**Controls and Operation**

Although the mainframe of the CompuCar is located in back of the car (Photo 2) an operator's console for command entry and readouts is mounted in the passenger's seat (Photo 3). This console allows instant readout of certain critical information (miles per hour, thickness of tire tread, last time car was washed, proximity to active geological faults, etc.) The keyboard allows instant programming of the CompuCar in pseudostructured hexadecimal form, and the joysticks provide for a very human-engineered means of controlling analog factors. It is even possible to remove the traditional old-fashioned mechanical controls (such as steering wheel, brakes, etc.) and allow the CompuCar to use its modern electronic brain to control these various low-level driving functions. Imagine the looks you'll get from State Troopers when you cruise past at 180 mph, fast asleep in the driver's seat of a Volkswagen Microbus. We did note some problems with the CompuCar driven in automatic mode as the program seems to bomb when the car is exactly midway between two active geological faults, suspending all automatic control functions. Helpful maps are available from the U.S. Geodetic Survey; plan your trips carefully.

**Conclusion**

The reviewers found that their lives were immeasurably improved by the CompuCar (at least 80 decibels) and would urge every one of you to buy one. Send your orders ($300 plus $5.95 s/h) to Horrendous Hardware, c/o DKBCPPRMCDIWJ, PO Box 789-M, Morristown NJ who are not really making them but your order will be expedited and passed along to the other Horrendous Hardware Company. Cash only, please. Allow 12-16 weeks for delivery.

**Photo 1. Compucar makes efficient use of the available space.**

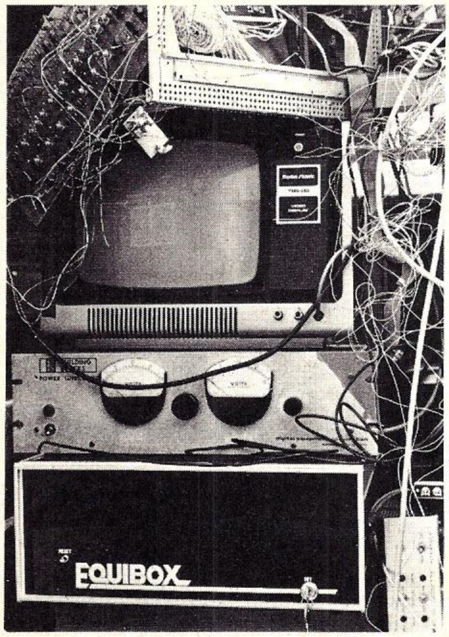


**Photo 2. Mainframe of the unit fits neatly in the back of the vehicle.**

**Photo 3. Operator's console is mounted in the passenger seat.**

# Meal Preparation Robot

by Htaed Tnatsni

The robotics division of Horrendous Hardware in cooperation with Scandalous Software recently introduced the third in a series of household robots. Here at DKBCPPRMCDIWJ we were fortunate to obtain a preproduction sample of the Model MPR meal preparation robot.

The programming and communication protocols are compatible with earlier Horrendous Hardware (HH) robots, thus we were able to use our Robot Rover (Model ARF) with the newer MPR model.

We installed the MPR Robot in the house of a (former) staffer and powered it up. The MPR Robot has soft plastic wheels, not unlike those found on Speedster skateboards, thus it will not mar hardwood floors. Following our verbal commands, MPR rolled into the kitchen. We showed MPR the cupboards, range, refrigerator and other storage areas. Having been preprogrammed to recognize various foods, utensils, pots, pans, dishes and other kitchen tools, MPR was quickly "at home" and flashed a message to us on its 40-character LED communications screen saying, "I WILL NOW TAKE OVER." The directness of this message was somewhat alarming, but we were confident that the programming at Scandalous Software was beyond reproach, hence we left MPR alone to its chores.

The lucky staffer who received MPR was told only that the latest model food preparation robot had been installed at his home to prepare meals for a week or so. We did not wish to bias him by telling him that MPR was a prototype robot; otherwise he might not have put his full trust in the robot which would not lead to an honest account of the robot's performance.

* * * * *

This is the portion of the article reserved for the critical review by our (late) staffer.

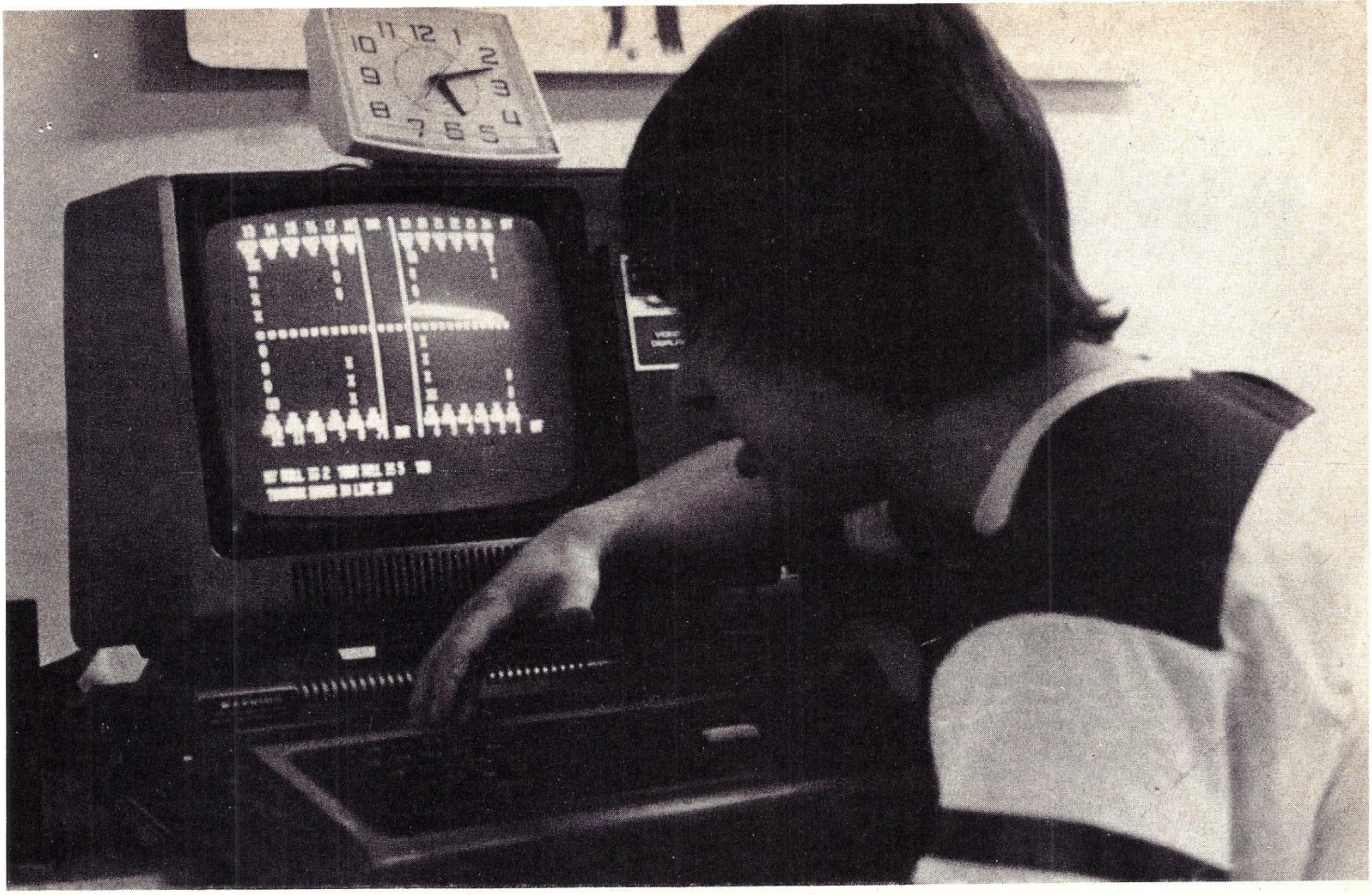
* * * * *

Our (recently departed) staffer did not report to work the next morning. We wrote this off to an infatuation with MPR or perhaps an overly rich meal which caused minor stomach cramps the next day.

After three (3) days of this errant behavior, our Publisher said, "Fire the bum!" We went to his home to investigate and there found MPR standing in the doorway with the following message on its LED screen, "NO MEALS EATEN FOR 2.67 DAYS." Further investigation revealed four corpses, all with grimaces on their faces. We speedily had MPR bury them in the backyard (assisted by Robot Rover) and then shut off MPR and shipped him back to the Horrendous Hardware factory with a letter encouraging them to "try him out in your company cafeteria."

```
17:10:00 * INTERRUPT *  Begin dinner preparation program
17:10:01 Select menu of nutritious foods that will be eaten by
         75% of the family members 75% of the time
17:10:04 * ENTER MENU SELECTION ROUTINE *
         Ground Beef * ACCEPT * FOOD=1
         Catsup  * ACCEPT * FOOD=2
         French Fried Potatoes  * ACCEPT * FOOD=3
         Vegetable Oil (to fry potatoes)  * ACCEPT * FOOD=4
         Spinach  * REJECT * Does not meet 75% criterion
         Green Beans  *REJECT *
         Brussels Sprouts  * REJECT *
         Lima Beans  * REJECT *
         Carrots  * REJECT *
         Seaweed Kelp  * REJECT *  None available in 50-mile
         radius
         Dandelion Stalks  * EVALUATE *  Meet nutrition
         requirement.  Not served to family previously.  No
         taste data available.  * ACCEPT *  FOOD=5
         Milk  * ACCEPT * FOOD=6
         Ice Cream  * ACCEPT *  FOOD=7
         Chocolate Sauce  * ACCEPT *  FOOD=8
17:10:30 * ENTER FOOD SEARCH ROUTINE *
              Find FOODS 2, 3, 6
              Cannot find FOODS 1, 4, 5, 7, 8
17:10:52 * ENTER FOOD GATHERING ROUTINE *
         Send robot rover to front yard to acquire 0.32 kilo
         FOOD 5
17:11:00 * ENTER SUBSTITUTE FOOD ROUTINE *
         Search for match on (1) Texture  (2) Appearance,
         including color, size, shape
17:11:09 Find match on FOOD 1
              Container label : Gainesburgers
17:11:24 Find match on FOOD 4
              Container label : Lestoil
17:12:07 No further matches found
17:12:08 * ENTER MAKE SUBSTITUTE FOOD ROUTINE *
17:12;09 Making FOOD 7
              4 ice cubes, 3 gm each
              0.5 cup cream
              Blend in food processor 3.2 min
              Put in freezer
17:15:40 Making FOOD 8
              10 oz can black shoe polish
              melt at 98c for 7.45 min
17:17:10 Detect foul odor.  Turn on exhaust fan
17:32:17 Robot rover returns with FOOD 5.  Also collected 3
         meadow muffins; will serve as special treat.
17:44:03 * ENTER COOK FOOD ROUTINE *
17:45:10 Fry FOOD 1 for 6.2 min per side
17:46:25 Simmer FOOD 5 in water for 14 min
17:53:04 Fry FOOD 3 in FOOD 4 for 5.4 min
17:59:01 * ENTER SERVE FOOD ROUTINE *
         Pour FOOD 6 in glasses
         Place FOODS 1, 3, 5 on plates
18:00:00 *** FAMILY SITS DOWN AT TABLE TO EAT ***
18:01:07 Detect hostility toward machines in conversation
18:02:05 Detect family not eating.  Conclude all will die of
         malnutrition unless action taken.
18:02:07 Strap arms and legs of family members to chairs.  Feed
         as babies including surprise muffins from Robot Rover
         and wonderful dessert FOODS 7, 8.
18:30:00 * ENTER CLEAN UP ROUTINE *
         Note all foods eaten.  Put plates and glasses in
         'Recycle/Disposal'
18:31:30 * DEACTIVATE UNTIL BREAKFAST PREPARATION *
```

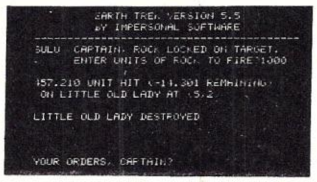
**Fig. 1. Printout of program run found in MPR upon investigation by (un-named) people from This Magazine.**



# Even at 5:12 a.m. it's hard to quit playing Impersonal Software strategy games.

A quick game before turning in can easily become a quick divorce or case of insanity when you load any of the Impersonal Software strategy games into your Lemon II, PIT, or Trash-80. They'll frustrate, annoy and hook you. And now there are new Impersonal Software packages to numb your mind:

**Earth Trek** is a new twist on an old game. Take command of a new tricycle in realtime action to make your neighborhood safe again. Peddle up and down the streets avoiding cars and Klingon dogs. Easy to learn, difficult to play, impossible to win.



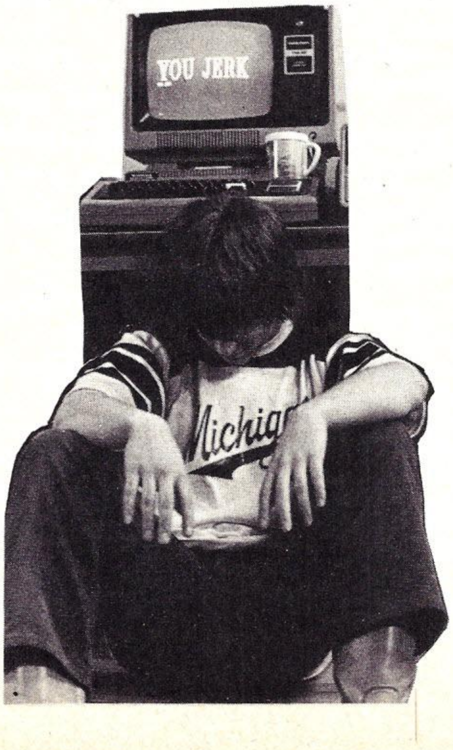
```
        EARTH TREK VERSION 5.5
        BY IMPERSONAL SOFTWARE
------------------------------------------
SULU  CAPTAIN, ROCK LOCKED ON TARGET.
      ENTER UNITS OF ROCK TO FIRE?1000

457.210 UNIT HIT (-14.301 REMAINING)
 ON LITTLE OLD LADY AT (5,2)

LITTLE OLD LADY DESTROYED


YOUR ORDERS, CAPTAIN?
```

**Megachess** requires an entire bank (32) of Trash-80s with one for each chess piece. Has one-ply look-behind algorithm. After each move, the computer announces "Why didn't I castle on my last move?" or "I wasn't expecting that!" or even "Can I take that back?" Upon finding itself in a losing position, the game provides nanolaughs as it makes your bishops into pawns.



**Sorry Partner.** From the title you might think this is yet another shoot em up game where you have to draw a gun and shoot your opponent before he, she or it shoots you. It isn't. This game assists you in playing the board game, Sorry. Dice rolls are instantly analyzed and the computer will tell you in a jiffy if you qualified to move a piece out by rolling a two.

**Hackgammon** will give you hours of challenging fun staying up all night trying to finish a game. Many random skill levels. The idea is to find the hidden syntax errors. Play almost to the end of an advanced-level game before finally finding a new one. Written by Ernest Hemmingway for the 8K PIT and Lemon II.

Impersonal Software produces a high quality line of frustrating, abusive and insulting programs for recreation and personal applications. You won't stop playing until they carry you away. IS also produces the Invisible Calc program that hides all your calculations from you as well as the IRS, the Vitamin cereals series and other excruciating software for Lemon II, PIT and Trash-80.

Now that you've read all about them, you can hear about them too. Just call **(212)936-3838**

# Why There Are No Programmers

by
Stephen Kimmel

I was teaching a class at the local junior college on computer programming when the great flaw of the assumed coming computer boom occurred to me. The problem seemed simple enough. If you are feeding fifty people and they eat an average of 55 square inches of pizza each, how many of each of three size pizzas would you have to buy? Simple?

Wrong. Nearly half of the class couldn't tell me how many square inches of pizza they had to buy. Without that ability, the rest of the exercise in programming was a waste of effort. And this was in a class of people who had an interest in programming!!!! How would I have done if I'd asked the general populace?

"Sir, if you had 50 people who each ate 55 square inches of pizza, how many square inches would you buy?"

"What you talking about, kid? Pizza's has round inches."

"Uhhh, madam..."

"Mugger!"

Clearly, there is something missing in the American educational system. And it clearly affects the lack of good available software.

I began to investigate this lack and my findings have proven truly astounding.

First, I have observed that there are virtually no programmers under the age of 15 or over 60. This of course doesn't mean that these individuals are incapable of programming. They simply have different interests and abilities. Immediately, you reduce the number of Americans who could be programmers from 210 million plus to approximately 130 million. Further, we obviously must eliminate the twelve and a half percent of Americans who are functionally illiterate. This reduces the number to 116, 623, 875. At first glance that would seem quite a large number of potential programmers. Further reductions, however, are required.

Only about 20% of all Americans have any algebra training. The value of this can hardly be questioned. Without the ability to solve the problem, or at least know how to approach a problem,the very idea of programming a computer to solve a problem seems ludicrous. This reduces our number of possible programmers to 23, 324, 775. Truly, this is evidence of the great failing of the American educational system.

A recent survey of a group of American chiropractors and veterinarians indicated that fully 60% answered "No opinion," "Don't Care," or "Republican." Clearly, these individuals not interested in programming can be eliminated. Thus our number of programmers is reduced to 9,329,910. This may, at first glance, seems a perfectly adequate number to handle all the programming needs of America well into the 1980's. But...

Computers are still a fairly expensive item to own. Even a minimal unit will cost more than a color television. It was clear to me that I would have to eliminate all those who couldn't afford a computer, would have no access to computers or who would prefer "I Love Lucy" reruns. I conservatively estimate that only a third of Americans can afford computers now. The number of programmers is, therefore, no more than 3,109,970. Of these, no more than 20% actually have a computer that they can spend time programming on. The number becomes 621, 994.

Despite the fine efforts of various publishers, programming training is still the best way to learn programming. Certainly, no more than 1% of Americans have actually had any computer programming training. If you've ever been in one of those classes, you'll realize that no more than one in twenty proves capable of surviving the lectures to be able to produce something more productive than a Playboy Bunny calendar. Further, as you recall from the classes you've attended in various subjects, you're lucky if you actually use more than one percent of what you were taught.

When all of these factors are taken into consideration, the cause of America's software crisis becomes clear.The only foreseeable solutions include mandatory algebra for all ages, mass distribution of computers to all Americans, required continuing education classes in programming for everyone, and a massive government propaganda effort to eliminate the "Don't cares." Until that time, America's two other programmers and myself are working just as fast as we can and you'll have to wait your turn in line.

Next Please?

**Do You Have What it Takes to be a Computer Programmer?**

Take this simple test and find out!!

1. What is your name?
2. Without looking, are you male or female?
3. Which of the following numbers is a 1?....1
4. Can you find your way through this maze?

IN OUT

5. What is the sum of 1 and 1? Be careful! There's a trick to this one!
6. What is your favorite color? Why not?

Scoring.

0-1 : Regrettably we can't all be computer programmers.

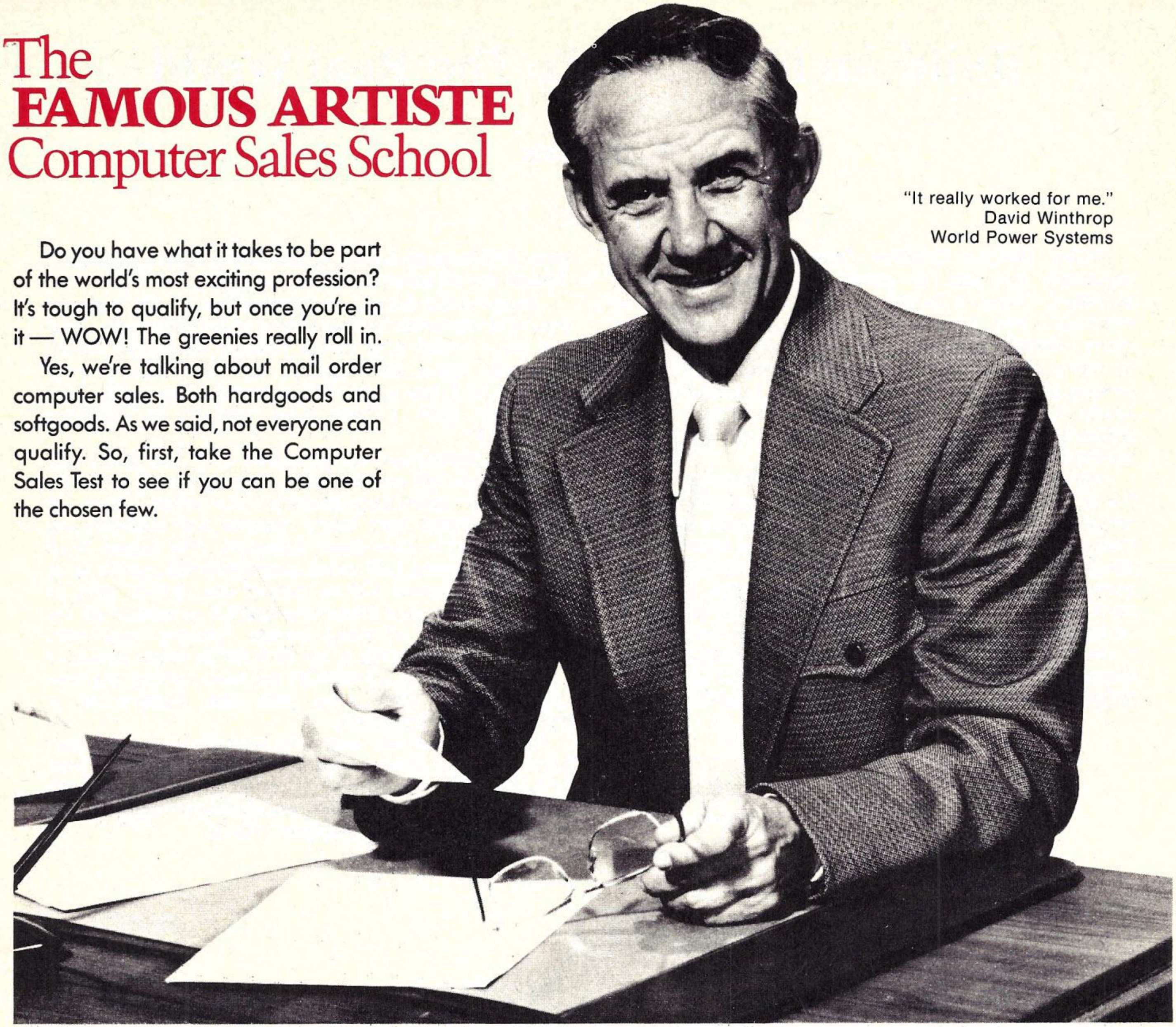
2-5 : You have the potential, with work, to become a professional class computer programmer. All you need is a little training

6 : You either cheated or you are already a computer programmer. Congratulations!

# The FAMOUS ARTISTE Computer Sales School

Do you have what it takes to be part of the world's most exciting profession? It's tough to qualify, but once you're in it — WOW! The greenies really roll in.

Yes, we're talking about mail order computer sales. Both hardgoods and softgoods. As we said, not everyone can qualify. So, first, take the Computer Sales Test to see if you can be one of the chosen few.



"It really worked for me."
David Winthrop
World Power Systems

| | Yes | No |
|---|---|---|
| 1. Are you between the ages of 16 and 85? | ☐ | ☐ |
| 2. Do you have a telephone or know where a pay phone is located? | ☐ | ☐ |
| 3. Do you have a doubleknit or fluorescent necktie — preferably green or purple? | ☐ | ☐ |
| 4. Are you either employed or unemployed currently? | ☐ | ☐ |
| 5. Do you have a Master Charge card with any credit left on it? | ☐ | ☐ |

Were you able to answer "Yes" to any of these high technology questions? If so, you have taken the first step towards the exciting world of mail order computer sales.

You, too, can receive our world-famous **Successful Computer Hardware Lucky Order Closing Kit** (SCHLOCK). As an authorized SCHLOCK'er you will receive absolutely everything you need to become an instant computer mail order millionaire:

- 2 IBM 4KB Model 1401's
- 7 Teletype KSR 33's
- 1 **Dress For Success** book
- 10 ANSI 74 COBOL manuals
- 1 Set of **Computerworld** mailing labels
- 1 Set of Sears Craftsman socket wrenches

Because of our enormous buying power, your down payment to riches can be as low as $6,250. With monthly payments just pennies a day (approximately 17,000 of them).

**SPECIAL BONUS OFFER!**

If you wish to become a billionaire instead of a millionaire, enclose one extra dollar and write the code numbers "370" on your order form. Our overseas subsidiary, Lloyd's of Liverpool, will send you the details of an exciting new mail order program. Your dollar will be refundable on your very first order.

**DON'T DELAY! MAIL TODAY!**

Right this very instant, fill out the coupon below with your payment so you, too, can become an instant millionaire.

TO: The
**FAMOUS ARTISTE** Computer Sales School
P. O. Box SCHLOCK, Del Rio, Texas

I passed your high technology test and wish to be considered as one of your SCHLOCK'ers.
I am enclosing my down payment of $6,250.00.

☐ Check enclosed ☐ Cash enclosed
☐ Charge to my credit card shown below:

☐ VISA ☐ Auto Club ☐ Texaco ☐ Macy's
☐ Master Charge ☐ Social Security ☐ Sears ☐ Safeway

Card #____________________

Millionaire Name: ____________________

Millionaire Address: ____________________

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# Build An Interface To The Real World

### Yggip Ssim

Many faithful **Creative Computing** readers will remember the popular article of a few years back subtitled, "How to Dindle a Framistan." As might be expected, this generated much reader interest and many letters requesting a follow-up piece. Now, with so many articles in print on how to interface an electric blanket to a PET, or connect a washing machine to an Apple, it is difficult to know what would have widest reader interest and, at the same time, not have been previously published.

However, looking through our vast correspondence file (a large cardboard box into which, unfortunately a can of black walnut stain and a half a bottle of Gallo Rhine wine had been spilled), it became immediately apparent that the device most needed by readers was a general-purpose real world interface. Since we pride ourselves on not writing theoretical articles that cannot be replicated by the average TRS-80 owner, we selected a real device to illustrate this General-Purpose Real World Interface (GPRWI, or, using poetic license, a PIGWOR, which may or may not be any better. But if you don't have an acronym, you don't have a program.) The device we selected was an aeolipile.

Imagine the surprised expressions on the faces of your friends when in the middle of nowhere you whip out your brand new home brewed aeolipile/TRS-80 interface. Wow. After you've had this around your house just a few days, you will say, "How did I get along for such a long time without an aeolipile interface?"

The unfortunate thing is that just last week our gerbil, Gigo, ate our aeolipile. This was truly ungood, but further searching amongst the sticky mass of letters revealed that many readers are experiencing problems with their blast furnaces. (We found from bitter experience that most frequently the recipe is at fault. We now use 1.6 m tons of ore, 0.7 m tons of coke, 0.2 m tons of limestone and 3.6 m tons of air for each short ton of iron.) Hence, leaping upon this fragment of information, we decided to show you how easy it is to build a PIGWOR for transporting pig iron and wrought iron (you see the beauty of a well-designed acronym!).

Undoubtedly you currently transport your molten iron in a ladle. The average 6-ton ladle is moved about by a 50 hp electric winch controlled by levers and push buttons. It is this archaic arrangement that we are going to replace with a modern TRS-80.

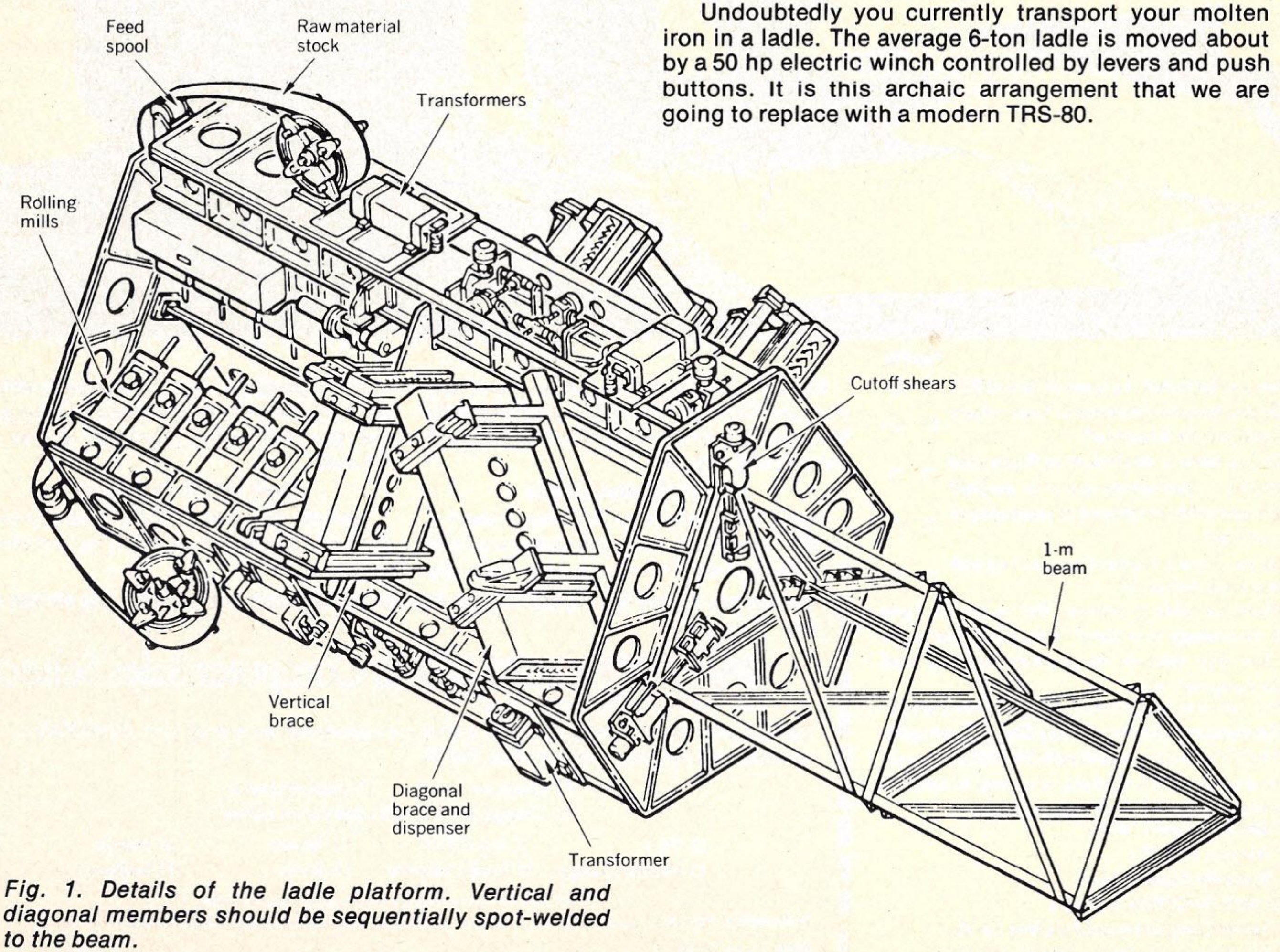
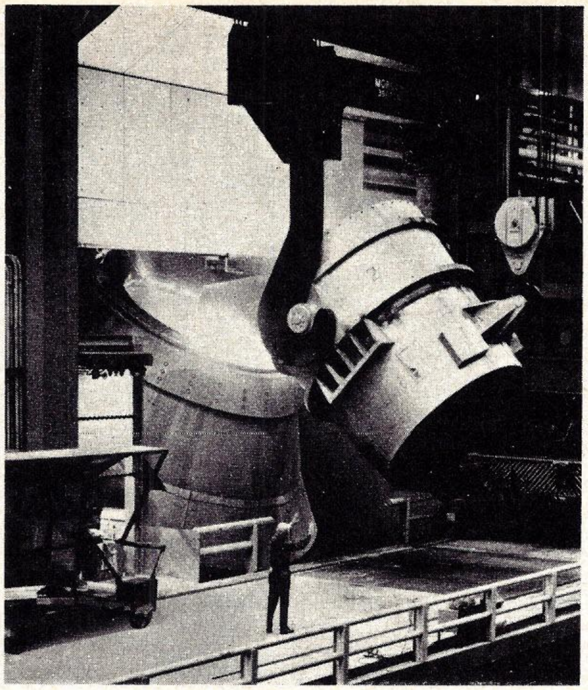


*Fig. 1. Details of the ladle platform. Vertical and diagonal members should be sequentially spot-welded to the beam.*



*Typical home installation of 6-ton iron ladle.*

### Building the Ladle Platform

The ladle platform is simplicity itself. This is, of course, the device which travels along the traveller and holds the ladle with its mighty arm. (It's hard not to get goose pimples when thinking of ladle platforms. Gosh!) Since all existing ladle platforms are unsatisfactory for interfacing with the PIGWOR TRS-80 interface, you will have to construct a new one. The complete details are shown in Figure 1. Dimensions are not given since it will have to be scaled up for your installation. Take your measurements from the drawing with an accurate rule and scale appropriately. Construct using double or triple weight Erector Set parts and set aside.

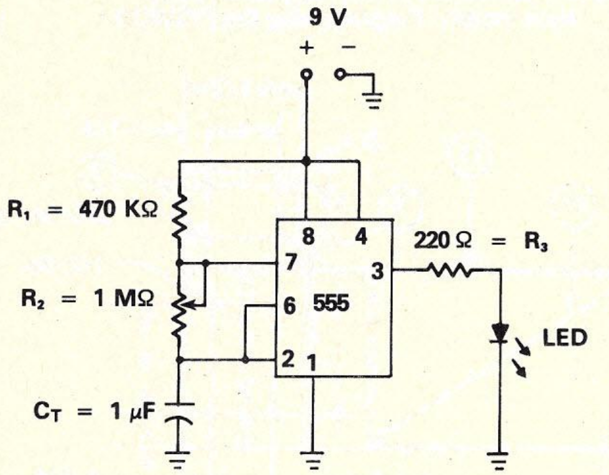


*Fig. 2. Layout of PIGWOR Interface Circuit.*

### Building the PIGWOR Interface

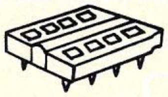
Before you start, keep in mind that you are building an electronic device of the highest precision. There is no room for the slightest error. The printed wiring board, small as it seems, provides a base on which to mount the components and the connectors from the TRS-80 and the ladle platform. Be sure to be extra special careful because the printed circuit board contains delicate semiconductor devices.

The following procedure will help you produce an interface for your every need, be it aeolipile or ladle platform. As you read each step, perform the necessary operation. Do not go on to the next step until you have finished the previous one, as your interface will probably blow up. Be careful.

( ) 1. Make sure you have the necessary parts. Use check list below.

( ) 555 IC

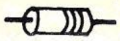
( ) 8 pin DIP socket



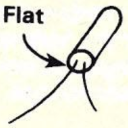
( ) 1 MQ pot (Does MQ really mean misquote?)

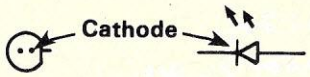
( ) 220 ohm resistor (OR-OR-BR or AND-AND-RB)

( ) 470K ohm resistor (YL-PR-YL)



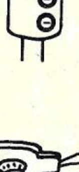
( ) LED (available in old calculator, Altair computer, etc.)



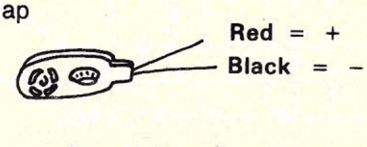


( ) Copper clad board -- approx. 1"x1"

( ) 1 uf capacitor



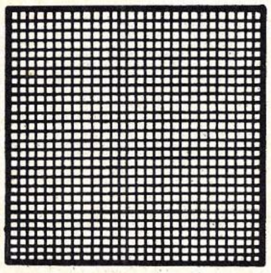
( ) Battery snap



( ) 9-volt battery (long life variety. You don't ever want to see this baby again.)

## Interface, con't . . .

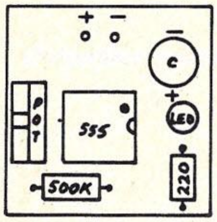
( ) 2. Design circuit layout using grid below. Place parts, mark off components and locate holes. This is the component side. If the holes line up with the foil (circuit) side, it would be even better. The circuit is shown in Figure 2.



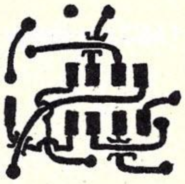
(Tape board to this layout and turn paper over to locate foil pads.)

( ) 3. On the foil side, draw conductors as shown below. Since this is an advanced project, tunnels and bridges have been used. You may use whatever method you wish to achieve this on the foil layout.

**Component Side**



**Foil Side**

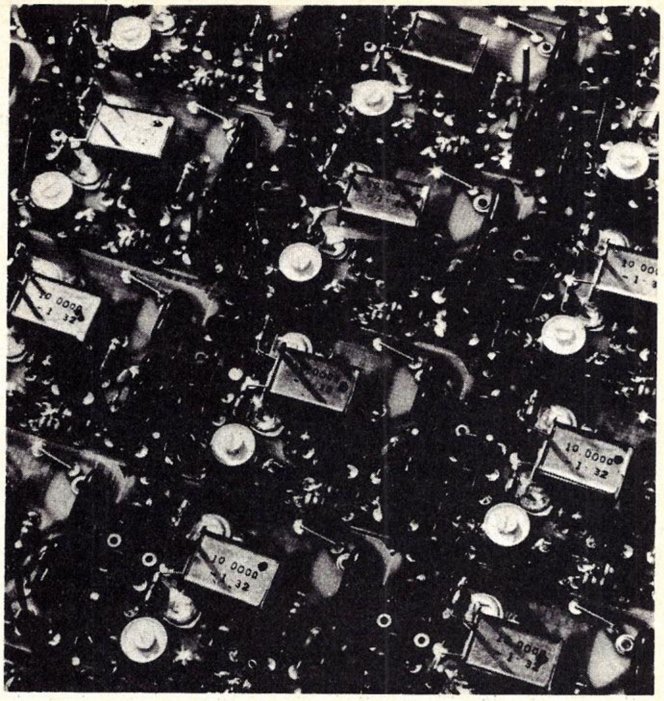


( ) 4. Etch, wash, reclaim, dry, remove resist and inspect board.

( ) 5. Mount components and solder in place.

( ) 6. Install completed circuit at Point 9 as shown in Figure 3. The photo shows the finished circuit in place.

( ) 7. Hook up to TRS-80 and ladle platform with at least 3-ton trial load of molten pig iron. If the circuit does not work, check for the following. If these are OK and the circuit still dumps molten ore on the floor, write (do not call) us for assistance.



*Finished PIGWOR Interface installed at Point 9*

( ) IC in wrong (tap with ball peen hammer to assure firm seating)

( ) LED in backwards (produces negative light -- hard to see)

( ) Solder bridges (like Brooklyn or GW, but for electrons)

( ) Faulty 555 chip (unscrupulous vendor sold you potato or cow variety instead of silicon)

You have just completed the process of fabricating a modern printed circuit board using a state-of-the-art semiconductor chip. Your PIGWOR should give you many faithful nanoseconds of service and hours of fun. If you want to know more about integrated circuits, be sure to subscribe to this magazine. Golly!

Next month: Programming the PIGWOR. □

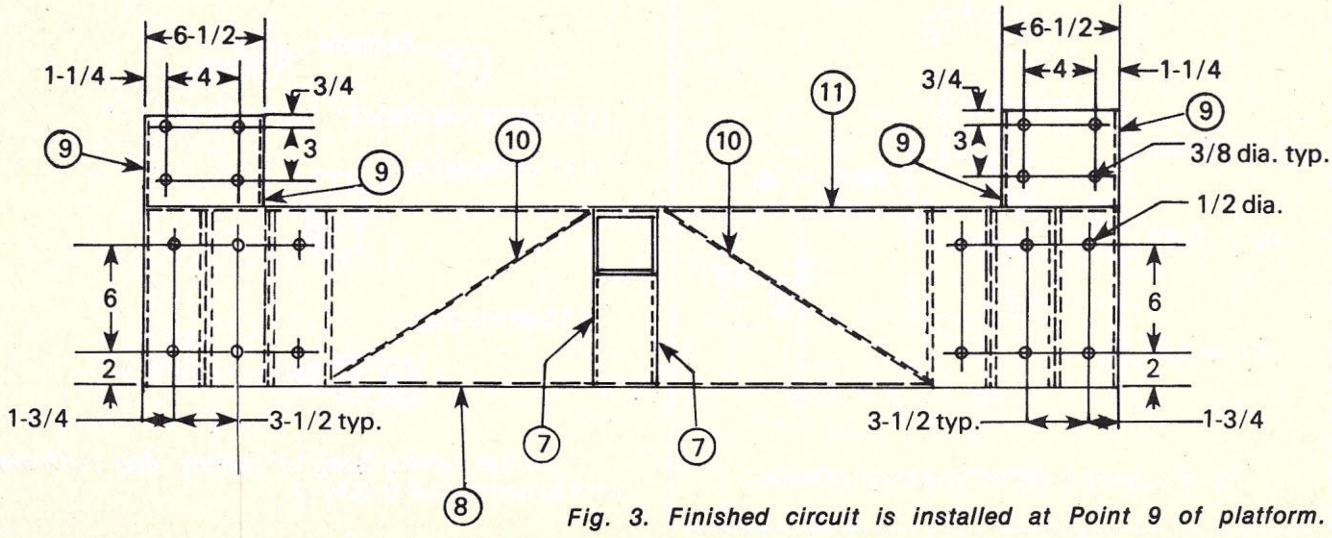
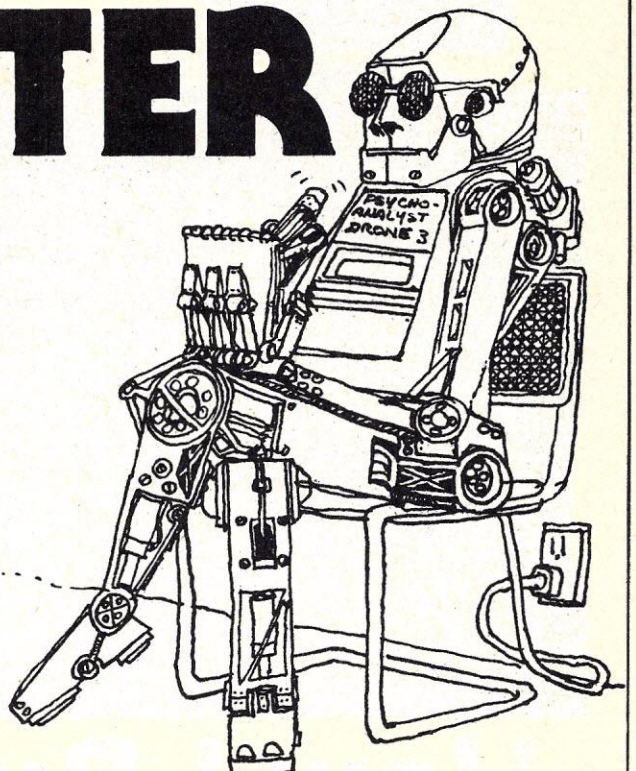


*Fig. 3. Finished circuit is installed at Point 9 of platform.*

# MORE BASIC COMPUTER GAMES



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Dealer's Choice
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Doors
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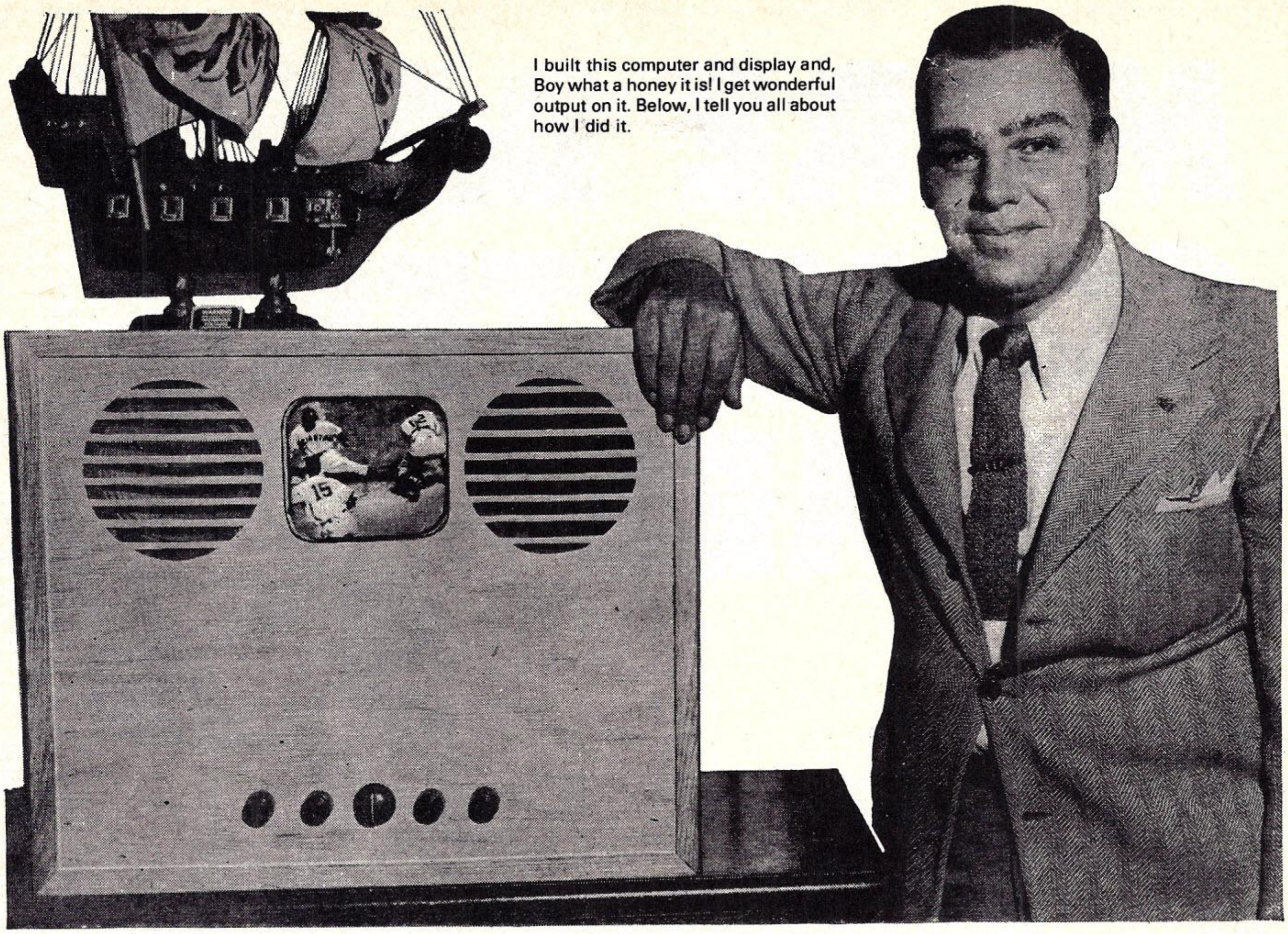
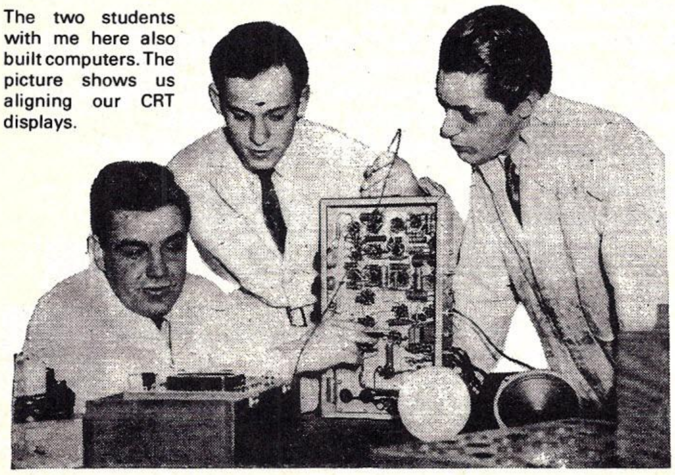


I built this computer and display and, Boy what a honey it is! I get wonderful output on it. Below, I tell you all about how I did it.

# How I Built My Own Computer

### by Llob Legan

Not very long ago, computers were a complete mystery to me. But not only did I build a complete computer system — I had a lot of fun doing it. And I've learned so much in a practical way that I'm well on the road to becoming an expert. In a few years from now I'll be able to "write my own ticket."



The two students with me here also built computers. The picture shows us aligning our CRT displays.

I always had a yen to get into computers before they got into me. But I didn't know how to go about it — until I heard about the S.P.I.T. of N.J. I went there with my discharge papers and they did the rest. They showed me how the Veterans Administration using everybody's hard-earned tax dollars would pay up to $500 a year against my educational expenses under the G.I. Bill. This meant that I had to pay very little out of my own pocket, plus I could continue to collect on unemployment while going to school. It's a big break for veterans like myself — especially when you get subsistence allowances in addition. And if you're into welfare fraud, you can really make out like a bandit. Of course, all the students here aren't veterans but most have something going on the side.

What bothered me at first, was that my mathematics was kind of rusty. It had been some years since I had got out of grade school and high school was a real bummer. I soon found out that the school had brush-up courses in math and even had facilities for teaching computer math from the beginning to students who never had the advantage of a high school education and couldn't rip off a good TI calculator. I convinced them that I was sincere and enthusiastic and that I was technically inclined, and so I became a student. Then the fun began. You know, you just can't build a computer right off the reel. I built seven crystal radio sets

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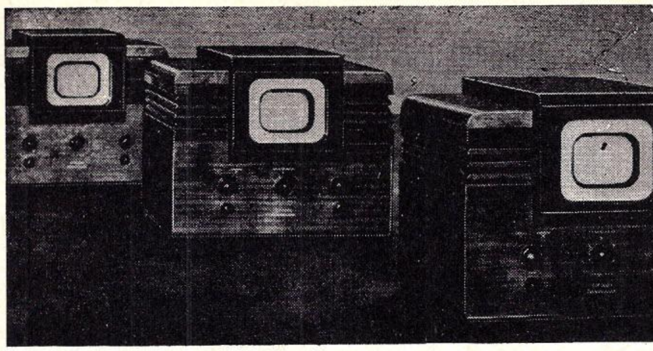
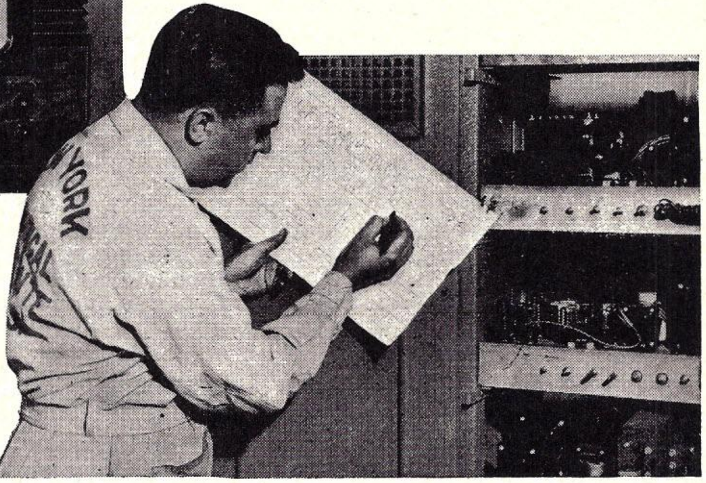


Here is a line of DuMont TV monitors that I and my fellow students use for comparative test purposes at S.P.I.T. of N.J. The very newest, latest equipment is ours to inspect and study at the school.



I want to learn about computer maintenance too. Here is a computer being maintained. I hope to enroll in a special evening class on maintenance.

and had to go through a total of 75 practical electronical experiments before they would even let me start on a computer.

Then I began work in earnest building my own 370/165. The instructors around here have plenty on the ball, and it was amazing how fast I progressed. I can't go into all the details here, but I turned the swell computer you see in the photo. I look mighty proud of myself, don't I? I guess I am.

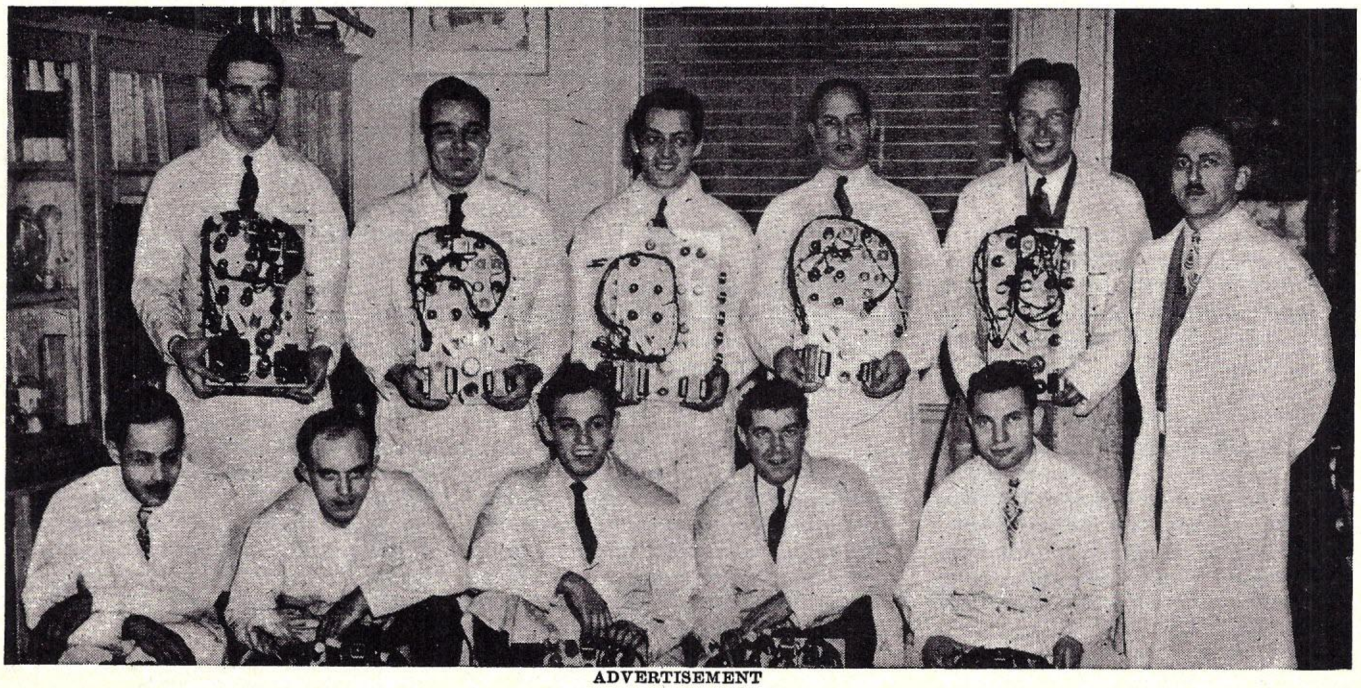
Boy, school was never like this. You should see the magnificent equipment. Finest in the world! There's a swell gang here — all interested in learning — all computer bugs. They come from all over because practical computer schools are hard to find and the S.P.I.T. of N.J. has a wonderful rep when it comes to computers. You should see the 8080 they have here at the school. Imagine a little hunk of silicon that costs $8.00! The school cooperates in every way — I don't believe that you can find better training anywhere.

Another thing I like about the S.P.I.T. of N.J. (which stands for the South Paterson Institute of Technology of New Jersey) is the convenient location. It's right in the *heart* of America's computer industry. It's close to everything. Big radio, television, electronics and computer manufacturers are nearby — like RCA, TDL, DuMont, and Edison. This means that the school is always in touch with the latest developments in electronics and computers.

The conditions here are really ideal. They have nanothousands of dollars worth of the latest types of equipment. I estimate that each student ruins $3,500 worth of experimental and test equipment. And there is a great deal of individual instruction. Classes are small and the instructors really know how to give you the business.

I am sure there are a lot of young fellows, particularly veterans and drifters, who want to get into this field. I understand there are about 120,000 openings for day students in classes beginning this June and July. If you want to get the complete dope about the school, you can have a free bulletin for just $2.00, which illustrates and describes its facilities and equipment; it also tells the classes that may be attended, housing conditions, costs, hours, etc. There is no charge except $2.00 handling for this bulletin. Send your letter to the South Paterson Institute of Technology of New Jersey, 158 Market Street, Bayonne, New Jersey.

These are my fellow class-mates (note that I am second from the left, standing) with the CPU chassis they built at the same time as I built my 370/165. I built the cabinet at home later on. Most of the classes are small, so you are sure of a lot of individual instruction, which is very important in learning the technical side of computers.



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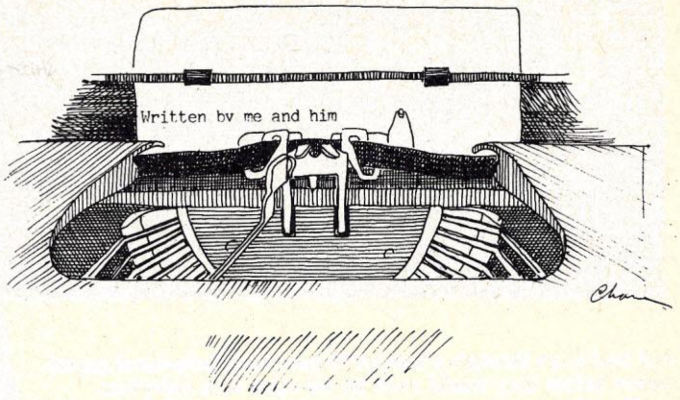
Affected Writing

Selpats Ysteb

# How to Hide Your Basic Meaning


Written bv me and him

The computing community represents an audience that is radically different than the audiances that most people are used to writting for. Their are, therefore, a number of special considerations to be taken into account when writting for such a special group of people.

It is expected by people who have an intimate acquaintance with high technology that what they read will be of great significance . . . that it will generally require an important and intelligent person to successfully comprehend it. In order to make you're audiance feel important and intelligent, the writter must make himself seem important and intelligent.

At the same time — however — people who are into technology don't want to be hampered by a plethora of useless rules and conventions. The thing that you want to do then, is to make you're writting seem impressive without getting bogged down a web of unnecessary constraints. To get this affect can at times be quite a challenge.

Now that we know what you're objective is I want to give you some specific hints that will help you when writting . . . whether its a letter in ones job or a technical article for a magazine like this one or a remark for you're latest TRS-80 program.

Firstly, you should bear in mind at all times that we want to sound as erudite and educated as possible. Here are some watermarks of the kind of erudite prose that will make people realize that you are smarter than them.

As many descriptive words as possible should be used in your sentences when you are writting in order to allow you to become all the more specific with your meaning for you're intended audiance. It is also obvious and evident to even the most casual of observers that the more words you can pack into a sentence or paragraph, the more erudite you are because this serves to demonstrate that you are the possessor of an enormous and in all probability rapidly expanding vocabulary of words.

It has been learned through our research something that you will hopefully learn through this column and that is that pronouns are not nearly as important as once thought and if you simply use them in the manner which is most natural to you, your audiance will understand you. Us technologically oriented people, which is to say me and you, really have no need to pay alot of attention to the things which english teachers call "person and case." These are antiquated methods of distinguishing what roll a thing plays in the sentence. What is important is communication and nowadays I think we can leave pronoun conjugations to any of those english teachers brave enough to try and make young students learn them. Anyway, any english teacher will tell you that the english language is losing its reflections and in a few years from now noone will have to worry about them anyway.

And while I'm on the subject of pronouns, let's note one very important one which is now coming into it's own and gaining popularity among those of you who are reluctant to completely abandon case distinctions, but who nevertheless don't know how to correctly use them. What is referred to here is the so-called "reflexive pronouns." When faced with the delemma of deciding among "It was built by he and I" and "It was built by he and me," a convenient way to avoid the decision altogether is to say "It was built by he and myself." Another useful phrase is; "As for myself. . ."

Now for another handy trick which will make both you and your writting and talking appear educated and inteligent, as well as desirably pedantic: Remember that anyone can use the simple past tense and it is — in fact — the first way that a child learns to refer to past happenings and occurances. The past perfect tense — however — requires much more education for proper mastery and is — therefore — the mark of the educated and intelligent person you are writing as. So whenever possible, the past perfect tense should be substituted for the simple past tense. For example rather than the pedestrian "When I crossed the wires, you were not looking," try the erudite "When I had crossed the wires, you were not looking," or the even more erudite "When I had crossed the wires, you had not been looking." (But after they had been crossed, you had looked quite startled).

The invention of new words has always been the stamp of those on the cutting edge of a trial balloon. Us computer folks are in the best position in centuries to constantly invent new words. It won't be long before the general populace adapts them for they're own use, but you can always have the satisfaction of knowing, for example, that the use of the word "baud" as a verb was perpetrated by you. And that is the way to do it, to, just think of a word, and determine a way, that it can be used, as a different part of speech. Color and interest are also added to you're writting in this way.

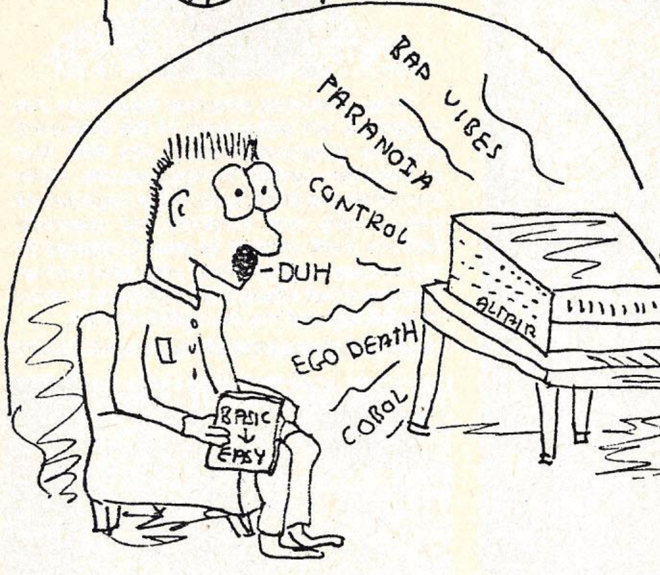
As you may or may not have noticed by now, one of the things that adds an extra element of credibility to this column your reading now is the continued and repeated use of the passive voice. The passive voice is used to help you avoid making any statements for which you might later be held responsible. Rather than saying, for example, "I think," try "It is believed." You do not have to say who it is believed by.

In conclusion, let me finally reiterate once again that last but not least, what is said is not nearly so important as the way you say it. Communication is afterall the key and if the means to express your thought is not available in the structure and framework of the english language as you learned it — improvise!

*This column has been written by Selpats Ysteb for Evad Lha who only edited it.*

DON'T YOU THINK IT'S TIME YOU STOOD UP FOR YOUR FREE WILL AND JOINED THE

# NEO-LUDDITES?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## HERE'S WHY!

Computers make people sick!!! They enslave you and sap ALL your Creative Energy!! Computers hook you like dope! Programming is obviously a "VAST WASTELAND." This is common knowledge. Using hobby computers will cause you unhappiness in life and you're more then likely to get CANCER!!!

IF YOUR FESTERING CREATIVE INSANITY IS SEEKING A REAL OUTLET, THEN

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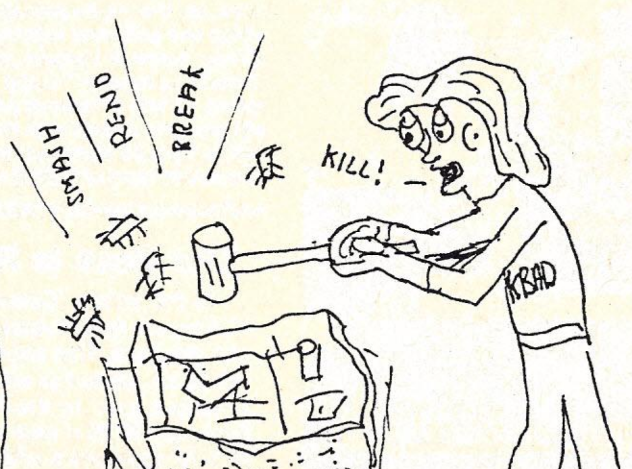

SMASH
REND
BREAK
KILL!
KBAD
ALTAIR

# et cetera et cetera et cetera

Your Editors and faithful Staffers recently moved into a new building in (what was) downtown Morristown. Unfortunately, the Passaic River (20 miles to the east) and the Delaware River (50 miles to the west) decided to get together after the winter thaw and they chose Morristown as the site for their merger. Here is our lavish new headquarters just three days after moving in.

* * *

New HP-85 computer designed for personal or laboratory use. Here an investment analysis technician, following the instructions on the high-resolution CRT display which she activated with the typewriter-like 20-key numeric keypad, mixes a batch of "instant computer." Upon drinking it and eating 1.2 feet of thermal printer paper, s/he will become at one with the computer and will be able to communicate with it at the interactive bipolar CMOS level.

* * *

## Our Face is Red Dept.

In the article "Control Your House," IC 4 was drawn inverted on the schematic diagram. This allows full line voltage to be applied to the computer A-to-D output port. In the TRS-80 this will burn out 38 IC's and in the Apple, 26 IC's. In computers with metallic cases, electrocution of the user is a likely outcome. We apologize for any inconvenience this error may have created.

After removing program bugs from live programs, we store them in the basement prior to dumping them at the Kim Buc (un)sanitary landfill for toxic wastes. However, after the flood many of the bugs turned into worms and infested our quarters. Staffers were obliged to wear C-clamps on their noses and be fitted with WW II charcoal gas mask filters in their throats in order to work around the incredible stench.

* * *

As a result of the absolutely terrible flood which devastated our offices, we misplaced some of the captions from the photos with which they belong. We know that one of the following five captions belongs with this photo, but we don't know which one. All seem appropriate. You may choose the one you like best.

"You mean I'm going to have to learn programming? Can I meet you after work?"

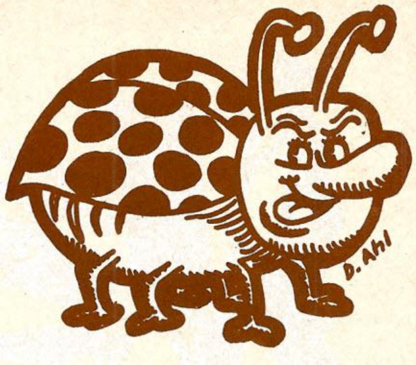
"You mean I've been working for the last five hours and the terminal was off line? Can I meet you after work?"

"You mean I'm **not** allowed to play Super Invader during my coffee break? Can I meet you after work?"

"The only reason I was running off checks for $9,999,999.99 was that I wanted to see how many digits it could handle. Can I meet you after work?"

"I think my finger is stuck. Can I meet you after work?"

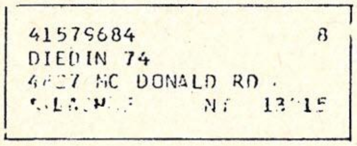
# Still a Few Bugs in the System



An estimable magazine sent out a renewal offer not long ago to a subscriber who had not renewed. The label was returned with a line through the gentlemen's name and a handwritten notation, "Died in '74."

You guessed it—the correction was made.

The next mailing, identical to the first, went out addressed as follows:



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41579684                 8
DIEDIN 74
4[illegible]7 MC DONALD RD .
[illegible]        NY   13[illegible]15
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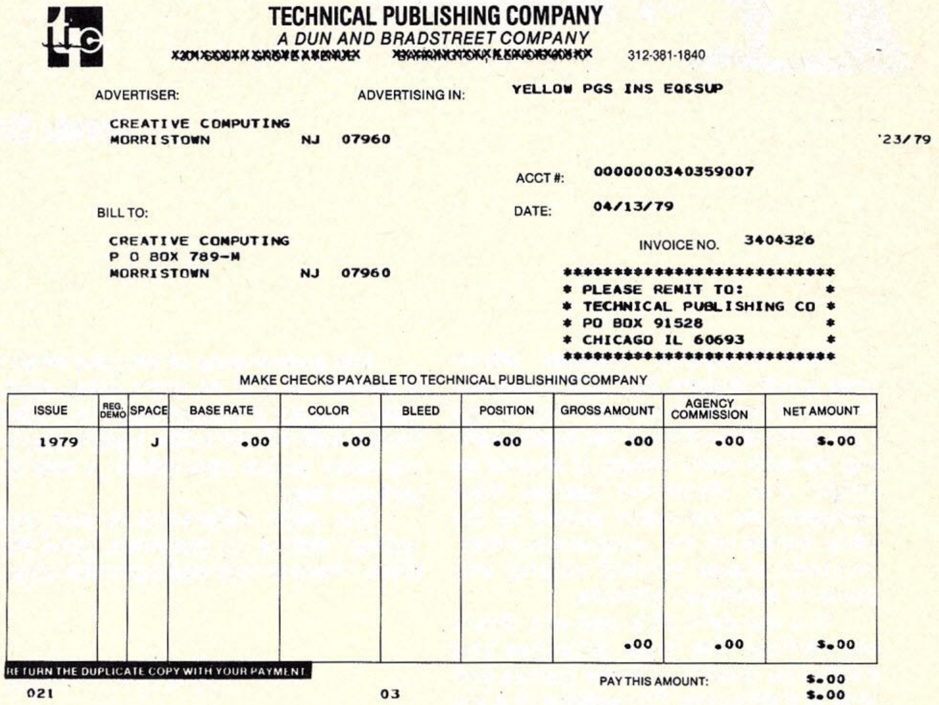
Forbes, Dec. 11, 1978

In March 1979, we placed an advertisement in an instrumentation magazine published by Technical Publishing Company, a subsidiary of Dun & Bradstreet. **Datamation** magazine is owned by Technical Publishing Co. also.

For the next three months, we received statements dunning us for $0.00 asking for prompt payment. The April notice is reproduced at the right.

Then in October, Mrs. C. Computing received a fantastic opportunity to participate in a $50,000 Sweepstakes sponsored by Spencer Gifts. We declined to use a perfectly good 15¢ stamp to enter.



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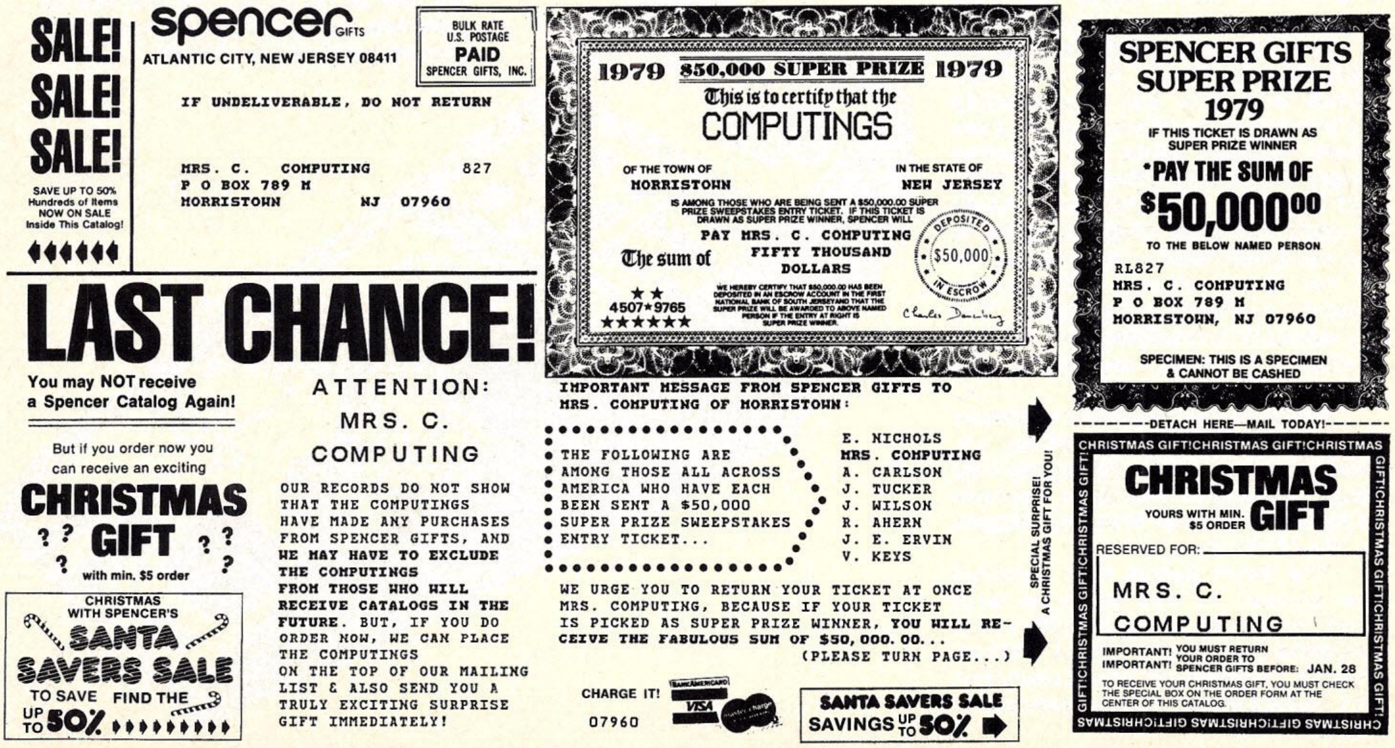

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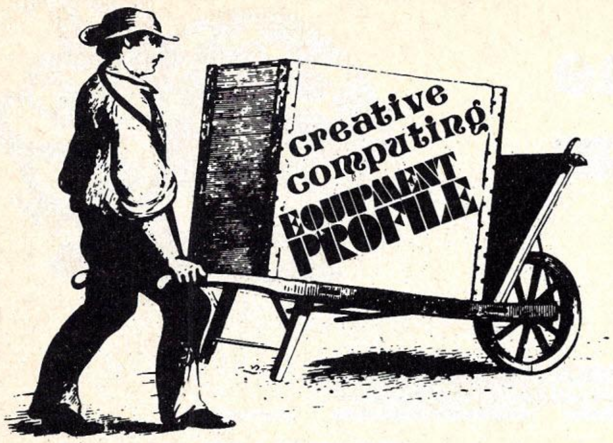


# Smith Sisters Wonder Which

### Ysteb Selpats

The Electronic Wonder Which from Smith Sisters, Inc. is the ultimate in electronic non-games. For those non-parents who have not been keeping up with such things, it should be noted that electronic games have replaced the transistor radios of the early sixties as the ubiquitous entertainment status symbol among students in American schools.

It is not difficult to see why this is so. Perhaps the most attractive and endearing quality of these games and toys is their price. Possession of a toy that costs $35 to $50 identifies the owner as the child of wealthy parents and confers instant status. But there are certainly other considerations.

Electronics and computers are the wave of the future, and electronic games and toys put this amazing technology in the hands of youngsters where flashing lights and irritating beeps continually affirm its mystery and challenge. The child can take on all comers — other children, adults or the computer itself — and display his or her quick reflexes and well-developed eye-hand coordination. The toy responds immediately with positive feedback: lights flash and noises issue forth from its innards.

But what about the child who lacks eye-hand coordination, whose reflexes are slow, whose toy makes only nasty "raspberry" sounds in response to his or her efforts? What will happen to this child's psyche?

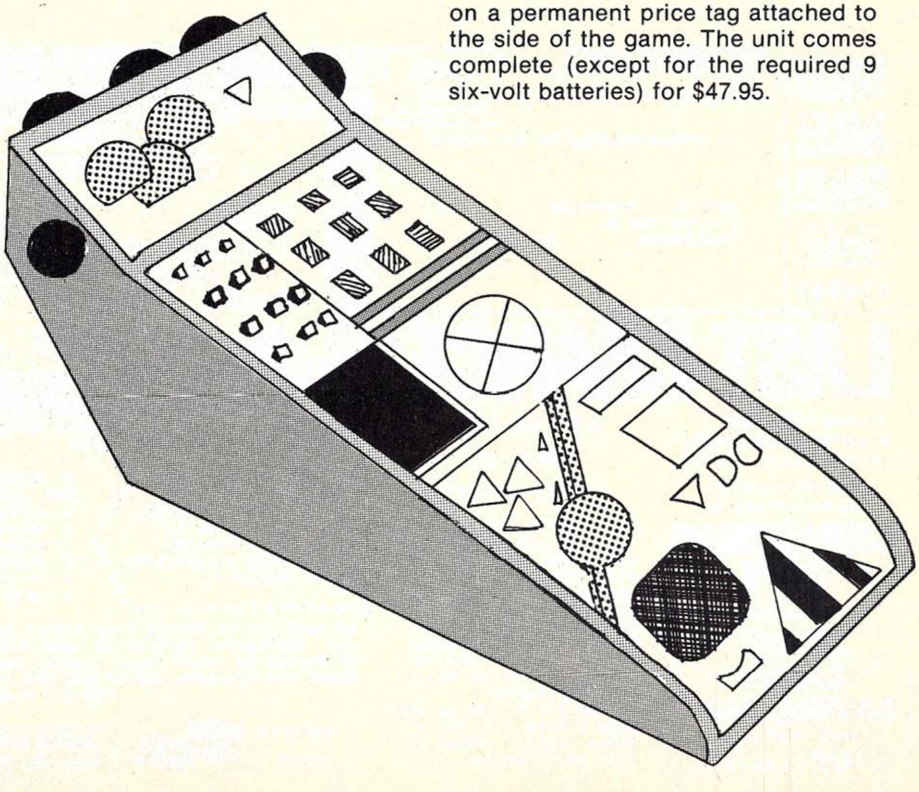
The Smith Sisters have provided the answer to this problem with Wonder Which. Wonder Which is designed specifically for the uncoordinated, not so bright, or just plain lazy, but nevertheless status conscious child.

The appearance of Wonder Which is similar to that of most other electronic games; it measures 34" x 7" and comes with an attractive plastic carrying case which resembles a leaf or garbage bag.

The main difference is that this "game" makes no demands upon the child. There is only one control button, which, when depressed, causes the toy to emit a random display of colored lights and an assortment of companionable chirps and beeps.

The child's peers need never know that he or she is not playing a game, that the lights and sounds it emits do not signal additional points being added to the score. (An older person can equate this deception with that of hiding a comic book between the pages of a textbook.)

One of the best features of Wonder Which is its price, which is, incidentally, emblazoned in large numbers on a permanent price tag attached to the side of the game. The unit comes complete (except for the required 9 six-volt batteries) for $47.95.



# Software Illegality Forum

Kcivon L. Dlorah

Well spacey flight fans, the day we have all awaited is near. You may never need to rip off another program. No more sleepless, guilt-ridden nights. Those software barons are about to be put in their place.

This advocator has received news of a new organization and two, count them: "one" and "two," courtly decisions. The new organization calling itself Really Into Programs Obtained For Free (RIPOFF), has decided to mount a nationwide campaign of attrition against the software barons as a result of suggestions made by the pearls-of-wisdom givers in the new cases. Anyone interested in finding out more about this organization should contact Dr. Winthrop c/o Leavenworth Federal Institution, Leavenworth, Kansas.

The second case, MBI v. Commissioner was decided by the Court in April, 1980. Adopting the dictionary definition of algorithm and recognizing the validity of the claims by the hardware barons, such as MBI, that if computer programs could be patented, then their widespread use would be greatly reduced and thus prevent the using public from exercising their constitutional right to have something to feed to their hardware, and recognizing that science, mathematics and algorithms are the tools of creativity and should not be restricted, and also realizing that the algorithm could be done by hand with a pencil and paper anyway, the Court said, in its ultimate wisdom, after spending many agonizing hours with the case, and in a truly landmark decision (or should it be "LANDMARK"), at page 0010 1001 of 1111 1110 Feb. 4th, that computer programs may not be patented because they positively are not patentable subject matter under the Constitution (Article 1, Section 8, Clause 8), unless Congress passes a law to the contrary. And we know that Congress cannot pass any law let alone a law to the contrary.

The first case, building on the CompuChess case (see past issues of **Creative Computing**, said that since no one could figure out an object program stored in a ROM, and from testimony heard by the court that after a source program had been written, even the writer couldn't figure it out, a computer program can not be copyrighted, probably because it was unintelligible to anyone except a machine and clearly, a machine cannot read a writing in the literary sense. This was clear to the court.

The Really organization, in a letter to this writer, said that with increased access to the courts and the ability of Really to handle their own cases without legal fees because of their extensive experience in the courts, they were filing a law suit against every software baron who refused to give them unlimited reproduction rights for free on the basis that the barons were establishing an illegal monopoly. They figure that their legal fees alone would put the barons out of business and thereby free up all of their software.

Just think, software fans, soon we should have all the software we can possibly use. In the meantime, just ignore those comments by the software barons regarding the users eating Roasted Golden Goose as being so much sour grapes.

Next month, if there is still something to write about and there is still enough material for this magazine to publish, we'll be back. ☐

---

Kcivon L. Dlorah, Patent Attorney,
LARSON, TAYLOR AND HINDS,
Arlington, VA 22202

**apple is now selling PET**

**GOSSIP from the desk of FLOPPY DICK**

LOS ANGELES — Rumors around California have it that Apple TV and Computing at 2606 South Robertson Blvd. is now recommending the CBM Computer. Several small business owners here have expressed their satisfaction after trying the CBM.

It seems that some of the features that they like are things like overall system flexibility, large (340K) floppy disk storage capacity, quality integrated CRT, large standard keyboard, not to mention upper and lower case.

Before the recent addition of the Commodore line, Apple TV and Computing sold the leading personal computer which bears its namesake. Recently, the owner of Apple TV and Computing, Dick Stroik, was quoted saying "previously, many of my business clients were impressed when they saw items like their monthly gross sales graphed in color on the screen. But now, they are giving their personal computers to their kids and ordering CBM computer systems for their businesses."

Dick is also pleased with the dependability of the CBM since he also services them. The $695.00 80-column printer is also a fast seller.

Rumors also have it that Comet Computers of West Covina, California is making a move to buy out Apple T and C, with the intention of changing that fruity name. I think Dick just might go along with that!

Thanks to:

Comet Computer
1337 W. Garvey No.
West Covina, CA 91790
(213) 962-7051

Richard Stroik
(213) 559-4268

CIRCLE 109 ON READER SERVICE CARD

# Floppy Disk Maintenance
# A Simplified Visual Approach

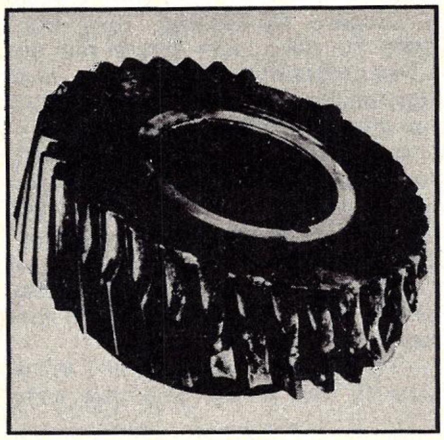
### Toidi Egalliv

Do you get a mite frustrated when, after hours of entering text with Electric Pen, you type in the SAVE command only to get the message BAD SECTOR ERROR ON DRIVE A or ***BDOS READ ERROR. It's even more frustrating when the disk drive has erased your old file but not written the new one. And it really gets up the dander when you realize that you can't get out of the disk subsystem without restarting the entire computer system thereby destroying your hours of text entry.

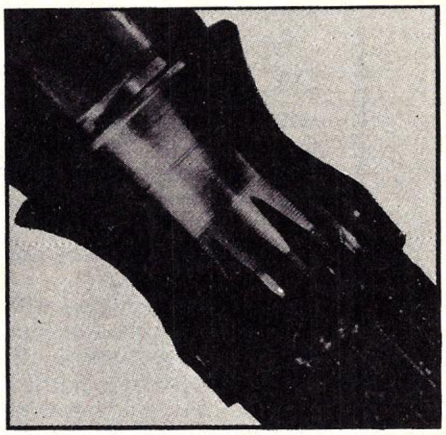
The very system upon which this article is being written almost found itself in the trash heap when a part-time employee (and college senior) had spent 12 hours entering a major term paper into the computer. Following our advice, he had been periodically saving the paper as he went along in case of a system crash. Two pages from the end he saved it and — SCRUNCH, SCRUNCH, SCRUNCH — the old file was erased perfectly but the new one was not written giving instead a message BDOS WRITE ERROR ON A. There was no escaping back to Electric Pen to save it on another disk. No, the disk drive has Struck Again and had us in its clutches. Our resident genius, Steve North, disassembled the disk via software on another system and found an earlier copy of the saved file which could, by black magic, be recovered. It was only this quick action that caused our hero to graduate on time and prevented the annihilation of this system.

Since then we have paid a great deal more attention to preventive maintenance to nip these little disk glitches in the bud before they become ERRORS.

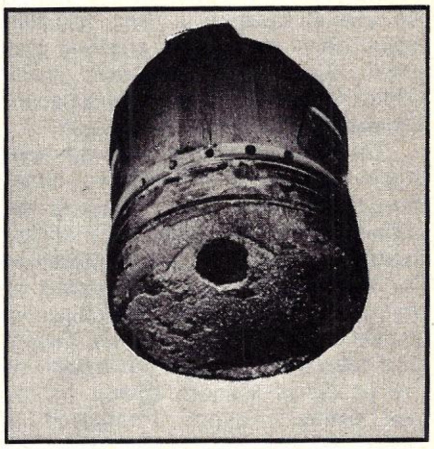
Since a picture is worth 1000 words or, assuming five letter words, a picture is worth 5000 bytes more or less, we opted for pictures instead of bytes. If you find these symptoms in your disk drives, act right away. In some of these cases the evil condition has progressed somewhat further than a prudent owner might wish.



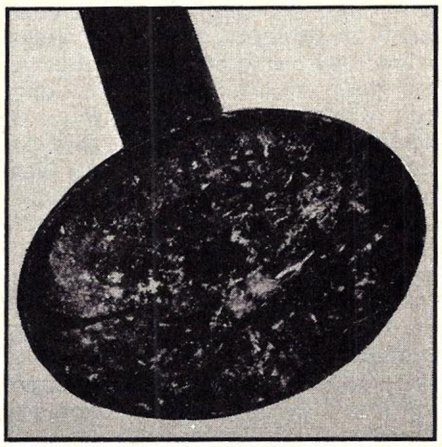
Drive gear (full size). Very careful observation will reveal several broken teeth (32, to be exact. To see all 32 we cheated — we have the gear here and can look at the entire circumference.) A fully broken tooth will cause the disk to stop rotating. This is ungood. The head will continue to seek (or write as the case may be) and will soon wear out the disk in that area. Solution: use a better gear lubricant. We recommend ½ quart of Mobil 1 in any new disk drive before you even turn it on the first time.



Drive shaft (full size). This part has not failed yet, but it will sometime within the next 12 nanoseconds of operation. Can you tell why? (Answer next issue.) If your shaft looks like this, DO NOT operate it for more than 100 picoseconds. Don't say we didn't tell you!

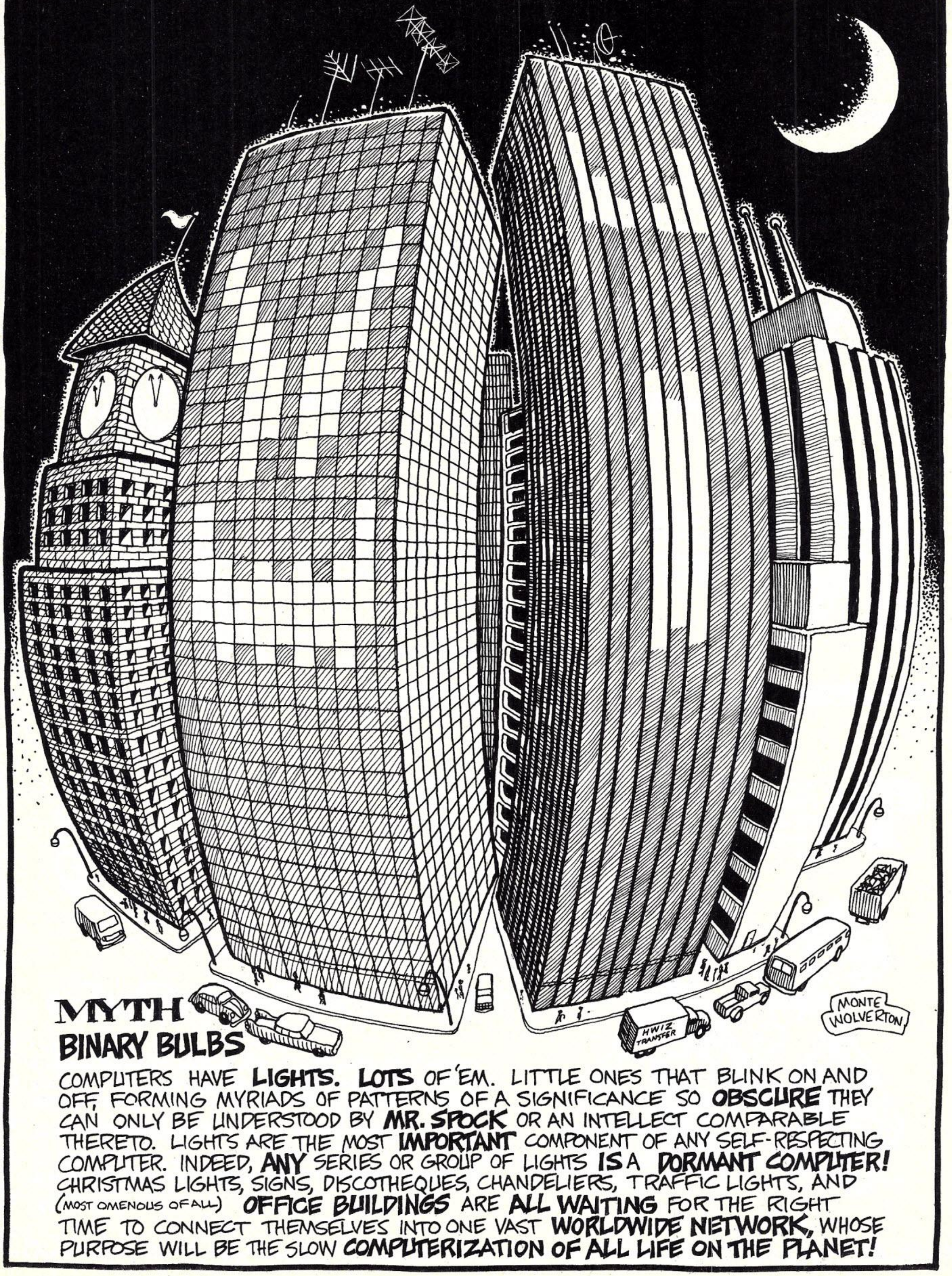


Write head (10,000X magnification). Notice the hole. This is where the bits flow out of the head and onto the disk surface. However, the hole is worn and uneven from too many bits flowing too quickly (or possibly from being sucked up too quickly when reading). Solution: slow down your data flow; your data are too long-winded.



Frammistan (156X magnification). In both shape and color this part resembles a miniature pizza, so it's easy to find even though it's so small. Like one's tonsils, no one is quite sure of the purpose of the frammistan. But if a slice has been removed, even a small one as in this photo, the frammistan can cause major errors in byte flow. Solution: feed the head regularly so it doesn't take bytes (or even bits) out of the frammistan.

# COMPUTER MYTHS EXPLAINED



## MYTH
## BINARY BULBS

COMPUTERS HAVE **LIGHTS. LOTS** OF 'EM. LITTLE ONES THAT BLINK ON AND OFF, FORMING MYRIADS OF PATTERNS OF A SIGNIFICANCE SO **OBSCURE** THEY CAN ONLY BE UNDERSTOOD BY **MR. SPOCK** OR AN INTELLECT COMPARABLE THERETO. LIGHTS ARE THE MOST **IMPORTANT** COMPONENT OF ANY SELF-RESPECTING COMPUTER. INDEED, **ANY** SERIES OR GROUP OF LIGHTS **IS** A **DORMANT COMPUTER!** CHRISTMAS LIGHTS, SIGNS, DISCOTHEQUES, CHANDELIERS, TRAFFIC LIGHTS, AND (MOST OMENOUS OF ALL) **OFFICE BUILDINGS** ARE **ALL WAITING** FOR THE RIGHT TIME TO CONNECT THEMSELVES INTO ONE VAST **WORLDWIDE NETWORK,** WHOSE PURPOSE WILL BE THE SLOW **COMPUTERIZATION OF ALL LIFE ON THE PLANET!**

# puzzles & problems

## Relativistic Dodecahedron

Take a regular dodecahedron (a solid which has 12 sides) made of cardboard and flatten it out onto a plane by cutting or bending any edges you want so that it is as long as possible in one dimension. Assume that each edge is one light-year in length and that you have a spaceship that can travel .99998 the speed of light. Assuming relativistic effects, what is the observed time from one end to the inside of the space ship?

* * *

## A Place for N

Nilrem's pet cockroach Cornelius came up with this stumper. Neither Nilrem nor any of our editors could solve it. (Not even Harl Chelmers, but he had just discovered an exciting new language called SNOBOL and was working on a special issue.) The letters A-M are arranged thusly:

$$\frac{\text{AB D} \quad \text{I K M}}{\text{C EFGH J L}}$$

Where is the letter N placed on the diagram?

* * *

## One Equals Twenty

This is always fun at parties. Take an old dollar bill and cut it up into little pieces with scissors. Put them all inside an empty paper bag and shake it up. Then reach inside the bag and pull out a brand new twenty dollar bill! How is it done?

**Nilrem**

* * *

**Answers:**

**Relativistic Dodecahedron:** Halfway, the other half you're on the way back.

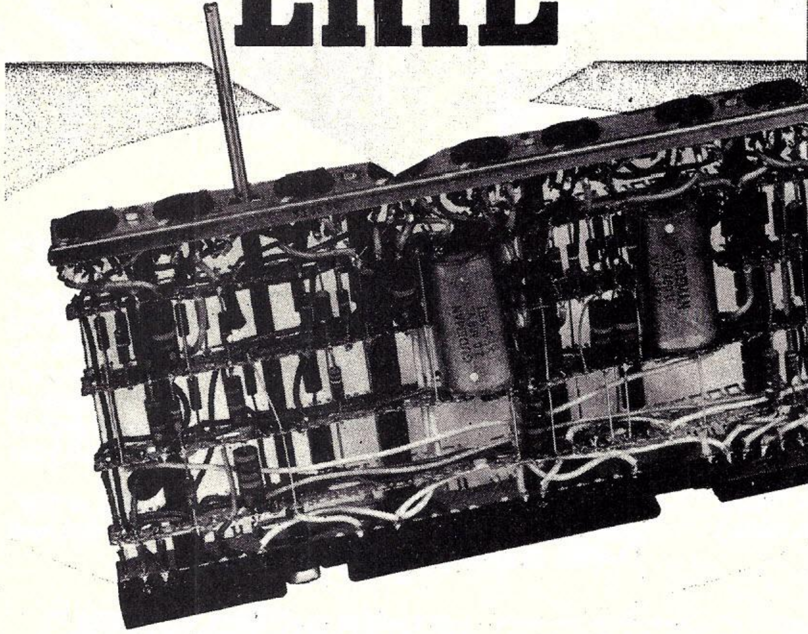
**A Place for N:** Either behind or in front of the line.

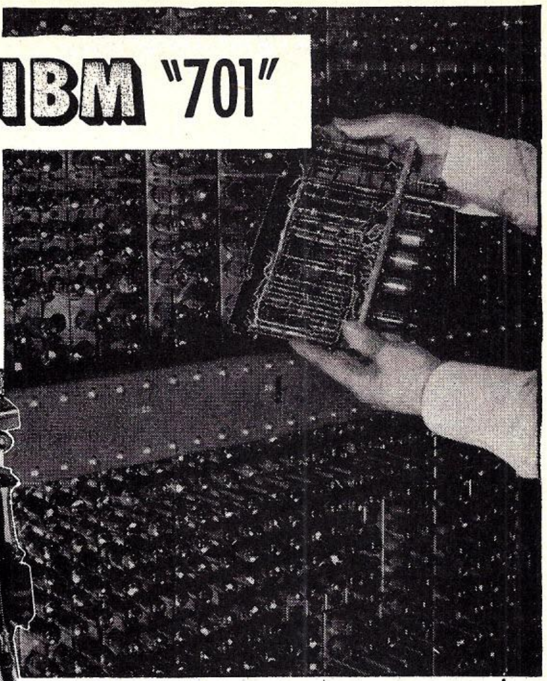
**One Equals Twenty:** Beats the hell out of Nilrem, but if you find an answer be sure to send it to him and he'll send you a copy of Nilrem's Puzzler Vol. 12, with more neat puzzles in it.

# A "BRAIN CELL" for the IBM "701"

## Electronic Calculator by

# ERIE

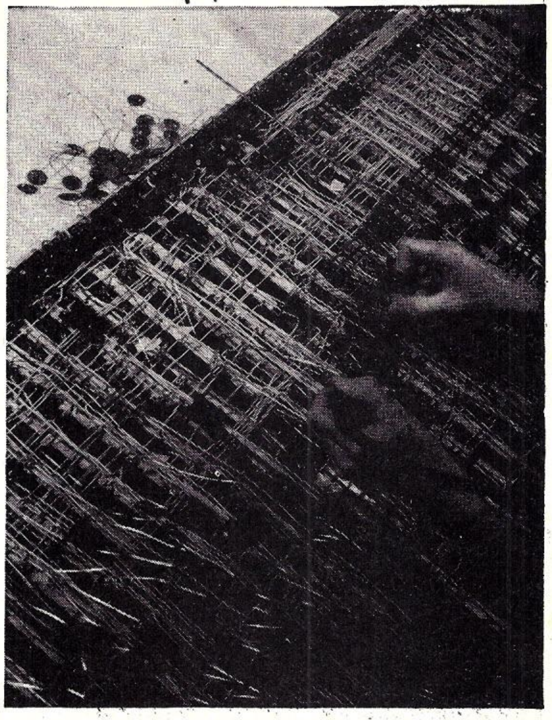




One of the units being installed in the Analytical Control Unit. ↑

← One of the 274 eight tube multiple pluggable units furnished completely wired and assembled by Erie for every "701".

All the disc capacitors shown in this maze of back panel wiring are Erie Ceramicons. ↓



IBM's "701," designed to shatter the time barrier confronting technicians working on vital defense projects, is the latest development in electronic calculators. Its overall speed is 25 times that of its predecessor, the IBM Selective Sequence Electronic Calculator, popularly known as "the electronic brain." The "701," known as the IBM Electronic Data Processing Machines, consists of eleven compact and connected units. It performs in a few minutes calculations which would require seven years for a competent operator using desk model calculating machines.

The actual calculations are performed in the Electronic Analytical Control Unit. Erie assembles and wires 274 different eight tube multiple pluggable units similar to that shown above for every IBM "701." Erie also furnishes the four tube units used in the tape amplifiers. Erie Disc Filter Capacitors are used on inputs of all the DC service voltages supplied to the pluggable units, and all ceramic capacitors in the Power unit are Erie products.

For several years Erie has had in operation a department engaged exclusively in electronic subassemblies of this nature.

*Write for further details.*

25th Anniversary

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Another old game from DKBCPPRMCDIWJ....

# Adventure in fORTRAN

### by Willie Crowthers and Don Woods

Over the years, we have had many requests for listings of the original legendary Adventure program. In one particularly poignant episode, a high-level executive in charge of data processing at Xerox called pleading for a listing because their system had crashed, erasing an important part of their only copy. Apparently some of his own higher-ups were addicted to playing the game and this unfortunate soul felt that his job was on the line. It must be tough to be a corporate officer at Xerox, but when you have power then you use it for a while.

We present here the entire commented source listing of Adventure in fORTRAN and the necessary data files. The fORTRAN program can compile under the Tinysoft TRS-80 or CP/M fORTRAN compilers, but at least 156K of RAM will be needed in the link edit phase. Data files are given as direct ASCII dumps. To test the program once it has been successfully compiled, simulate the logic of the program as shown in the magazine for some typical inputs (like GO NORTH or TAKE KEYS) and see if your version does the same thing.

Next month: Weizenbaum's original ELIZA in IISP, and a small computer version of Smalltalk written in Level I bASIC (both on the same page, even.)

```
1       YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK BUILDING.
1       AROUND YOU IS A FOREST.  A SMALL STREAM FLOWS OUT OF THE BUILDING AND
1       DOWN A GULLY.
2       YOU HAVE WALKED UP A HILL, STILL IN THE FOREST.  THE ROAD SLOPES BACK
2       DOWN THE OTHER SIDE OF THE HILL.  THERE IS A BUILDING IN THE DISTANCE.
3       YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.
4       YOU ARE IN A VALLEY IN THE FOREST BESIDE A STREAM TUMBLING ALONG A
4       ROCKY BED.
5       YOU ARE IN OPEN FOREST, WITH A DEEP VALLEY TO ONE SIDE.
6       YOU ARE IN OPEN FOREST NEAR BOTH A VALLEY AND A ROAD.
7       AT YOUR FEET ALL THE WATER OF THE STREAM SPLASHES INTO A 2-INCH SLIT
7       IN THE ROCK.  DOWNSTREAM THE STREAMBED IS BARE ROCK.
8       YOU ARE IN A 20-FOOT DEPRESSION FLOORED WITH BARE DIRT.  SET INTO THE
8       DIRT IS A STRONG STEEL GRATE MOUNTED IN CONCRETE.  A DRY STREAMBED
8       LEADS INTO THE DEPRESSION.
9       YOU ARE IN A SMALL CHAMBER BENEATH A 3X3 STEEL GRATE TO THE SURFACE.
9       A LOW CRAWL OVER COBBLES LEADS INWARD TO THE WEST.
10      YOU ARE CRAWLING OVER COBBLES IN A LOW PASSAGE.  THERE IS A DIM LIGHT
10      AT THE EAST END OF THE PASSAGE.
11      YOU ARE IN A DEBRIS ROOM FILLED WITH STUFF WASHED IN FROM THE SURFACE.
11      A LOW WIDE PASSAGE WITH COBBLES BECOMES PLUGGED WITH MUD AND DEBRIS
11      HERE, BUT AN AWKWARD CANYON LEADS UPWARD AND WEST.  A NOTE ON THE WALL
11      SAYS "MAGIC WORD XYZZY".
12      YOU ARE IN AN AWKWARD SLOPING EAST/WEST CANYON.
13      YOU ARE IN A SPLENDID CHAMBER THIRTY FEET HIGH.  THE WALLS ARE FROZEN
13      RIVERS OF ORANGE STONE.  AN AWKWARD CANYON AND A GOOD PASSAGE EXIT
13      FROM EAST AND WEST SIDES OF THE CHAMBER.
14      AT YOUR FEET IS A SMALL PIT BREATHING TRACES OF WHITE MIST.  AN EAST
14      PASSAGE ENDS HERE EXCEPT FOR A SMALL CRACK LEADING ON.
15      YOU ARE AT ONE END OF A VAST HALL STRETCHING FORWARD OUT OF SIGHT TO
15      THE WEST.  THERE ARE OPENINGS TO EITHER SIDE.  NEARBY, A WIDE STONE
15      STAIRCASE LEADS DOWNWARD.  THE HALL IS FILLED WITH WISPS OF WHITE MIST
15      SWAYING TO AND FRO ALMOST AS IF ALIVE.  A COLD WIND BLOWS UP THE
15      STAIRCASE.  THERE IS A PASSAGE AT THE TOP OF A DOME BEHIND YOU.
16      THE CRACK IS FAR TOO SMALL FOR YOU TO FOLLOW.
17      YOU ARE ON THE EAST BANK OF A FISSURE SLICING CLEAR ACROSS THE HALL.
17      THE MIST IS QUITE THICK HERE, AND THE FISSURE IS TOO WIDE TO JUMP.
18      THIS IS A LOW ROOM WITH A CRUDE NOTE ON THE WALL.  THE NOTE SAYS,
18      "YOU WON'T GET IT UP THE STEPS".
19      YOU ARE IN THE HALL OF THE MOUNTAIN KING, WITH PASSAGES OFF IN ALL
19      DIRECTIONS.
20      YOU ARE AT THE BOTTOM OF THE PIT WITH A BROKEN NECK.
21      YOU DIDN'T MAKE IT.
22      THE DOME IS UNCLIMBABLE.
23      YOU ARE AT THE WEST END OF THE TWOPIT ROOM.  THERE IS A LARGE HOLE IN
23      THE WALL ABOVE THE PIT AT THIS END OF THE ROOM.
24      YOU ARE AT THE BOTTOM OF THE EASTERN PIT IN THE TWOPIT ROOM.  THERE IS
24      A SMALL POOL OF OIL IN ONE CORNER OF THE PIT.
25      YOU ARE AT THE BOTTOM OF THE WESTERN PIT IN THE TWOPIT ROOM.  THERE IS
25      A LARGE HOLE IN THE WALL ABOUT 25 FEET ABOVE YOU.
26      YOU CLAMBER UP THE PLANT AND SCURRY THROUGH THE HOLE AT THE TOP.
27      YOU ARE ON THE WEST SIDE OF THE FISSURE IN THE HALL OF MISTS.
28      YOU ARE IN A LOW N/S PASSAGE AT A HOLE IN THE FLOOR.  THE HOLE GOES
28      DOWN TO AN E/W PASSAGE.
29      YOU ARE IN THE SOUTH SIDE CHAMBER.
30      YOU ARE IN THE WEST SIDE CHAMBER OF THE HALL OF THE MOUNTAIN KING.
30      A PASSAGE CONTINUES WEST AND UP HERE.
31      >$<
32      YOU CAN'T GET BY THE SNAKE.
33      YOU ARE IN A LARGE ROOM, WITH A PASSAGE TO THE SOUTH, A PASSAGE TO THE
33      WEST, AND A WALL OF BROKEN ROCK TO THE EAST.  THERE IS A LARGE "Y2" ON
33      A ROCK IN THE ROOM'S CENTER.
34      YOU ARE IN A JUMBLE OF ROCK, WITH CRACKS EVERYWHERE.
35      YOU'RE AT A LOW WINDOW OVERLOOKING A HUGE PIT, WHICH EXTENDS UP OUT OF
35      SIGHT.  A FLOOR IS INDISTINCTLY VISIBLE OVER 50 FEET BELOW.  TRACES OF
35      WHITE MIST COVER THE FLOOR OF THE PIT, BECOMING THICKER TO THE RIGHT.
35      MARKS IN THE DUST AROUND THE WINDOW WOULD SEEM TO INDICATE THAT
35      SOMEONE HAS BEEN HERE RECENTLY.  DIRECTLY ACROSS THE PIT FROM YOU AND
35      25 FEET AWAY THERE IS A SIMILAR WINDOW LOOKING INTO A LIGHTED ROOM.  A
35      SHADOWY FIGURE CAN BE SEEN THERE PEERING BACK AT YOU.
36      YOU ARE IN A DIRTY BROKEN PASSAGE.  TO THE EAST IS A CRAWL.  TO THE
36      WEST IS A LARGE PASSAGE.  ABOVE YOU IS A HOLE TO ANOTHER PASSAGE.
37      YOU ARE ON THE BRINK OF A SMALL CLEAN CLIMBABLE PIT.  A CRAWL LEADS
37      WEST.
38      YOU ARE IN THE BOTTOM OF A SMALL PIT WITH A LITTLE STREAM, WHICH
38      ENTERS AND EXITS THROUGH TINY SLITS.
39      YOU ARE IN A LARGE ROOM FULL OF DUSTY ROCKS.  THERE IS A BIG HOLE IN
39      THE FLOOR.  THERE ARE CRACKS EVERYWHERE, AND A PASSAGE LEADING EAST.
40      YOU HAVE CRAWLED THROUGH A VERY LOW WIDE PASSAGE PARALLEL TO AND NORTH
40      OF THE HALL OF MISTS.
41      YOU ARE AT THE WEST END OF HALL OF MISTS.  A LOW WIDE CRAWL CONTINUES
41      WEST AND ANOTHER GOES NORTH.  TO THE SOUTH IS A LITTLE PASSAGE 6 FEET
41      OFF THE FLOOR.
42      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
43      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
44      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
45      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
46      DEAD END
47      DEAD END
48      DEAD END
49      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
50      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
51      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
52      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
53      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
54      DEAD END
55      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
56      DEAD END
57      YOU ARE ON THE BRINK OF A THIRTY FOOT PIT WITH A MASSIVE ORANGE COLUMN
57      DOWN ONE WALL.  YOU COULD CLIMB DOWN HERE BUT YOU COULD NOT GET BACK
57      UP.  THE MAZE CONTINUES AT THIS LEVEL.
71      YOU ARE IN A SECRET CANYON AT A JUNCTION OF THREE CANYONS, BEARING
71      NORTH, SOUTH, AND SE.  THE NORTH ONE IS AS TALL AS THE OTHER TWO
71      COMBINED.
72      YOU ARE IN A LARGE LOW ROOM.  CRAWLS LEAD NORTH, SE, AND SW.
73      DEAD END CRAWL.
74      YOU ARE IN A SECRET CANYON WHICH HERE RUNS E/W.  IT CROSSES OVER A
74      VERY TIGHT CANYON 15 FEET BELOW.  IF YOU GO DOWN YOU MAY NOT BE ABLE
74      TO GET BACK UP.
75      YOU ARE AT A WIDE PLACE IN A VERY TIGHT N/S CANYON.
76      THE CANYON HERE BECOMES TOO TIGHT TO GO FURTHER SOUTH.
77      YOU ARE IN A TALL E/W CANYON.  A LOW TIGHT CRAWL GOES 3 FEET NORTH AND
77      SEEMS TO OPEN UP.
78      THE CANYON RUNS INTO A MASS OF BOULDERS -- DEAD END.
79      THE STREAM FLOWS OUT THROUGH A PAIR OF 1 FOOT DIAMETER SEWER PIPES.
79      IT WOULD BE ADVISABLE TO USE THE EXIT.
80      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
81      DEAD END
82      DEAD END
83      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
84      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
85      DEAD END
86      DEAD END
87      YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL ALIKE.
88      YOU ARE IN A LONG, NARROW CORRIDOR STRETCHING OUT OF SIGHT TO THE
88      WEST.  AT THE EASTERN END IS A HOLE THROUGH WHICH YOU CAN SEE A
88      PROFUSION OF LEAVES.
89      THERE IS NOTHING HERE TO CLIMB.  USE "UP" OR "OUT" TO LEAVE THE PIT.
90      YOU HAVE CLIMBED UP THE PLANT AND OUT OF THE PIT.
91      YOU ARE AT THE TOP OF A STEEP INCLINE ABOVE A LARGE ROOM.  YOU COULD
91      CLIMB DOWN HERE, BUT YOU WOULD NOT BE ABLE TO CLIMB UP.  THERE IS A
91      PASSAGE LEADING BACK TO THE NORTH.
92      YOU ARE IN THE GIANT ROOM.  THE CEILING HERE IS TOO HIGH UP FOR YOUR
92      LAMP TO SHOW IT.  CAVERNOUS PASSAGES LEAD EAST, NORTH, AND SOUTH.  ON
92      THE WEST WALL IS SCRAWLED THE INSCRIPTION, "FEE FIE FOE FOO" [SIC].
93      THE PASSAGE HERE IS BLOCKED BY A RECENT CAVE-IN.
94      YOU ARE AT ONE END OF AN IMMENSE NORTH/SOUTH PASSAGE.
95      YOU ARE IN A MAGNIFICENT CAVERN WITH A RUSHING STREAM, WHICH CASCADES
95      OVER A SPARKLING WATERFALL INTO A ROARING WHIRLPOOL WHICH DISAPPEARS
95      THROUGH A HOLE IN THE FLOOR.  PASSAGES EXIT TO THE SOUTH AND WEST.
96      YOU ARE IN THE SOFT ROOM.  THE WALLS ARE COVERED WITH HEAVY CURTAINS,
96      THE FLOOR WITH A THICK PILE CARPET.  MOSS COVERS THE CEILING.
97      THIS IS THE ORIENTAL ROOM.  ANCIENT ORIENTAL CAVE DRAWINGS COVER THE
97      WALLS.  A GENTLY SLOPING PASSAGE LEADS UPWARD TO THE NORTH, ANOTHER
97      PASSAGE LEADS SE, AND A HANDS AND KNEES CRAWL LEADS WEST.
98      YOU ARE FOLLOWING A WIDE PATH AROUND THE OUTER EDGE OF A LARGE CAVERN.
98      FAR BELOW, THROUGH A HEAVY WHITE MIST, STRANGE SPLASHING NOISES CAN BE
98      HEARD.  THE MIST RISES UP THROUGH A FISSURE IN THE CEILING.  THE PATH
98      EXITS TO THE SOUTH AND WEST.
99      YOU ARE IN AN ALCOVE.  A SMALL NW PATH SEEMS TO WIDEN AFTER A SHORT
99      DISTANCE.  AN EXTREMELY TIGHT TUNNEL LEADS EAST.  IT LOOKS LIKE A VERY
99      TIGHT SQUEEZE.  AN EERIE LIGHT CAN BE SEEN AT THE OTHER END.
100     YOU'RE IN A SMALL CHAMBER LIT BY AN EERIE GREEN LIGHT.  AN EXTREMELY
100     NARROW TUNNEL EXITS TO THE WEST.  A DARK CORRIDOR LEADS NE.
101     YOU'RE IN THE DARK-ROOM.  A CORRIDOR LEADING SOUTH IS THE ONLY EXIT.
102     YOU ARE IN AN ARCHED HALL.  A CORAL PASSAGE ONCE CONTINUED UP AND EAST
102     FROM HERE, BUT IS NOW BLOCKED BY DEBRIS.  THE AIR SMELLS OF SEA WATER.
103     YOU'RE IN A LARGE ROOM CARVED OUT OF SEDIMENTARY ROCK.  THE FLOOR AND
103     WALLS ARE LITTERED WITH BITS OF SHELLS IMBEDDED IN THE STONE.  A
103     SHALLOW PASSAGE PROCEEDS DOWNWARD, AND A SOMEWHAT STEEPER ONE LEADS
103     UP.  A LOW HANDS AND KNEES PASSAGE ENTERS FROM THE SOUTH.
104     YOU ARE IN A LONG SLOPING CORRIDOR WITH RAGGED SHARP WALLS.
105     YOU ARE IN A CUL-DE-SAC ABOUT EIGHT FEET ACROSS.
106     YOU ARE IN AN ANTEROOM LEADING TO A LARGE PASSAGE TO THE EAST.  SMALL
106     PASSAGES GO WEST AND UP.  THE REMNANTS OF RECENT DIGGING ARE EVIDENT.
106     A SIGN IN MIDAIR HERE SAYS "CAVE UNDER CONSTRUCTION BEYOND THIS POINT.
106     PROCEED AT OWN RISK.  [WITT CONSTRUCTION COMPANY]"
107     YOU ARE IN A MAZE OF TWISTY LITTLE PASSAGES, ALL DIFFERENT.
108     YOU ARE AT WITT'S END.  PASSAGES LEAD OFF IN *ALL* DIRECTIONS.
109     YOU ARE IN A NORTH/SOUTH CANYON ABOUT 25 FEET ACROSS.  THE FLOOR IS
109     COVERED BY WHITE MIST SEEPING IN FROM THE NORTH.  THE WALLS EXTEND
109     UPWARD FOR WELL OVER 100 FEET.  SUSPENDED FROM SOME UNSEEN POINT FAR
109     ABOVE YOU, AN ENORMOUS TWO-SIDED MIRROR IS HANGING PARALLEL TO AND
109     MIDWAY BETWEEN THE CANYON WALLS.  (THE MIRROR IS OBVIOUSLY PROVIDED
109     FOR THE USE OF THE DWARVES, WHO AS YOU KNOW, ARE EXTREMELY VAIN.)  A
109     SMALL WINDOW CAN BE SEEN IN EITHER WALL, SOME FIFTY FEET UP.
110     YOU'RE AT A LOW WINDOW OVERLOOKING A HUGE PIT, WHICH EXTENDS UP OUT OF
110     SIGHT.  A FLOOR IS INDISTINCTLY VISIBLE OVER 50 FEET BELOW.  TRACES OF
110     WHITE MIST COVER THE FLOOR OF THE PIT, BECOMING THICKER TO THE LEFT.
110     MARKS IN THE DUST AROUND THE WINDOW WOULD SEEM TO INDICATE THAT
110     SOMEONE HAS BEEN HERE RECENTLY.  DIRECTLY ACROSS THE PIT FROM YOU AND
110     25 FEET AWAY THERE IS A SIMILAR WINDOW LOOKING INTO A LIGHTED ROOM.  A
110     SHADOWY FIGURE CAN BE SEEN THERE PEERING BACK AT YOU.
111     A LARGE STALACTITE EXTENDS FROM THE ROOF AND ALMOST REACHES THE FLOOR
111     BELOW.  YOU COULD CLIMB DOWN IT, AND JUMP FROM IT TO THE FLOOR, BUT
111     HAVING DONE SO YOU WOULD BE UNABLE TO REACH IT TO CLIMB BACK UP.
112     YOU ARE IN A LITTLE MAZE OF TWISTING PASSAGES, ALL DIFFERENT.
113     YOU ARE AT THE EDGE OF A LARGE UNDERGROUND RESERVOIR.  AN OPAQUE CLOUD
113     OF WHITE MIST FILLS THE ROOM AND RISES RAPIDLY UPWARD.  THE LAKE IS
113     FED BY A STREAM, WHICH TUMBLES OUT OF A HOLE IN THE WALL ABOUT 10 FEET
113     OVERHEAD AND SPLASHES NOISILY INTO THE WATER SOMEWHERE WITHIN THE
113     MIST.  THE ONLY PASSAGE GOES BACK TOWARD THE SOUTH.
114     DEAD END
115     YOU ARE AT THE NORTHEAST END OF AN IMMENSE ROOM, EVEN LARGER THAN THE
115     GIANT ROOM.  IT APPEARS TO BE A REPOSITORY FOR THE "ADVENTURE"
115     PROGRAM.  MASSIVE TORCHES FAR OVERHEAD BATHE THE ROOM WITH SMOKY
115     YELLOW LIGHT.  SCATTERED ABOUT YOU CAN BE SEEN A PILE OF BOTTLES (ALL
115     OF THEM EMPTY), A NURSERY OF YOUNG BEANSTALKS MURMURING QUIETLY, A BED
115     OF OYSTERS, A BUNDLE OF BLACK RODS WITH RUSTY STARS ON THEIR ENDS, AND
115     A COLLECTION OF BRASS LANTERNS.  OFF TO ONE SIDE A GREAT MANY DWARVES
115     ARE SLEEPING ON THE FLOOR, SNORING LOUDLY.  A SIGN NEARBY READS: "DO
115     NOT DISTURB THE DWARVES!"  AN IMMENSE MIRROR IS HANGING AGAINST ONE
115     WALL, AND STRETCHES TO THE OTHER END OF THE ROOM, WHERE VARIOUS OTHER
115     SUNDRY OBJECTS CAN BE GLIMPSED DIMLY IN THE DISTANCE.
116     YOU ARE AT THE SOUTHWEST END OF THE REPOSITORY.  TO ONE SIDE IS A PIT
116     FULL OF FIERCE GREEN SNAKES.  ON THE OTHER SIDE IS A ROW OF SMALL
116     WICKER CAGES, EACH OF WHICH CONTAINS A LITTLE SULKING BIRD.  IN ONE
116     CORNER IS A BUNDLE OF BLACK RODS WITH RUSTY MARKS ON THEIR ENDS.  A
116     LARGE NUMBER OF VELVET PILLOWS ARE SCATTERED ABOUT ON THE FLOOR.  A
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C  CAVE CLOSING AND SCORING


C  THESE SECTIONS HANDLE THE CLOSING OF THE CAVE.  THE CAVE CLOSES "CLOCK1"
C  TURNS AFTER THE LAST TREASURE HAS BEEN LOCATED (INCLUDING THE PIRATE'S
C  CHEST, WHICH MAY OF COURSE NEVER SHOW UP).  NOTE THAT THE TREASURES NEED NOT
C  HAVE BEEN TAKEN YET, JUST LOCATED.  HENCE CLOCK1 MUST BE LARGE ENOUGH TO GET
C  OUT OF THE CAVE (IT ONLY TICKS WHILE INSIDE THE CAVE).  WHEN IT HITS ZERO,
C  WE BRANCH TO 10000 TO START CLOSING THE CAVE, AND THEN SIT BACK AND WAIT FOR
C  HIM TO TRY TO GET OUT.  IF HE DOESN'T WITHIN CLOCK2 TURNS, WE CLOSE THE
C  CAVE; IF HE DOES TRY, WE ASSUME HE PANICS, AND GIVE HIM A FEW ADDITIONAL
C  TURNS TO GET FRANTIC BEFORE WE CLOSE.  WHEN CLOCK2 HITS ZERO, WE BRANCH TO
C  11000 TO TRANSPORT HIM INTO THE FINAL PUZZLE.  NOTE THAT THE PUZZLE DEPENDS
C  UPON ALL SORTS OF RANDOM THINGS.  FOR INSTANCE, THERE MUST BE NO WATER OR
C  OIL, SINCE THERE ARE BEANSTALKS WHICH WE DON'T WANT TO BE ABLE TO WATER,
C  SINCE THE CODE CAN'T HANDLE IT.  ALSO, WE CAN HAVE NO KEYS, SINCE THERE IS A
C  GRATE (HAVING MOVED THE FIXED OBJECT!) THERE SEPARATING HIM FROM ALL THE
C  TREASURES.  MOST OF THESE PROBLEMS ARISE FROM THE USE OF NEGATIVE PROP
C  NUMBERS TO SUPPRESS THE OBJECT DESCRIPTIONS UNTIL HE'S ACTUALLY MOVED THE
C  OBJECTS.

C  WHEN THE FIRST WARNING COMES, WE LOCK THE GRATE, DESTROY THE BRIDGE, KILL
C  ALL THE DWARVES (AND THE PIRATE), REMOVE THE TROLL AND BEAR (UNLESS DEAD),
C  AND SET "CLOSNG" TO TRUE.  LEAVE THE DRAGON; TOO MUCH TROUBLE TO MOVE IT.
C  FROM NOW UNTIL CLOCK2 RUNS OUT, HE CANNOT UNLOCK THE GRATE, MOVE TO ANY
C  LOCATION OUTSIDE THE CAVE (LOC<9), OR CREATE THE BRIDGE.  NOR CAN HE BE
C  RESURRECTED IF HE DIES.  NOTE THAT THE SNAKE IS ALREADY GONE, SINCE HE GOT
C  TO THE TREASURE ACCESSIBLE ONLY VIA THE HALL OF THE MT. KING.  ALSO, HE'S
C  BEEN IN GIANT ROOM (TO GET EGGS), SO WE CAN REFER TO IT.  ALSO ALSO, HE'S
C  GOTTEN THE PEARL, SO WE KNOW THE BIVALVE IS AN OYSTER.  *AND*, THE DWARVES
C  MUST HAVE BEEN ACTIVATED, SINCE WE'VE FOUND CHEST.

10000   PROP(GRATE)=0
        PROP(FISSUR)=0
        DO 10010 I=1,6
        DSEEN(I)=.FALSE.
10010   DLOC(I)=0
        CALL MOVE(TROLL,0)
        CALL MOVE(TROLL+100,0)
        CALL MOVE(TROLL2,PLAC(TROLL))
        CALL MOVE(TROLL2+100,FIXD(TROLL))
        CALL JUGGLE(CHASM)
        IF(PROP(BEAR).NE.3)CALL DSTROY(BEAR)
        PROP(CHAIN)=0
        FIXED(CHAIN)=0
        PROP(AXE)=0
        FIXED(AXE)=0
        CALL RSPEAK(129)
        CLOCK1=-1
        CLOSNG=.TRUE.
        GOTO 19999

C  ONCE HE'S PANICKED, AND CLOCK2 HAS RUN OUT, WE COME HERE TO SET UP THE
C  STORAGE ROOM.  THE ROOM HAS TWO LOCS, HARDWIRED AS 115 (NE) AND 116 (SW).
C  AT THE NE END, WE PLACE EMPTY BOTTLES, A NURSERY OF PLANTS, A BED OF
C  OYSTERS, A PILE OF LAMPS, RODS WITH STARS, SLEEPING DWARVES, AND HIM.  AND
C  THE SW END WE PLACE GRATE OVER TREASURES, SNAKE PIT, COVEY OF CAGED BIRDS,
C  MORE RODS, AND PILLOWS.  A MIRROR STRETCHES ACROSS ONE WALL.  MANY OF THE
C  OBJECTS COME FROM KNOWN LOCATIONS AND/OR STATES (E.G. THE SNAKE IS KNOWN TO
C  HAVE BEEN DESTROYED AND NEEDN'T BE CARRIED AWAY FROM ITS OLD "PLACE"),
C  MAKING THE VARIOUS OBJECTS BE HANDLED DIFFERENTLY.  WE ALSO DROP ALL OTHER
C  OBJECTS HE MIGHT BE CARRYING (LEST HE HAVE SOME WHICH COULD CAUSE TROUBLE,
C  SUCH AS THE KEYS).  WE DESCRIBE THE FLASH OF LIGHT AND TRUNDLE BACK.

11000   PROP(BOTTLE)=PUT(BOTTLE,115,1)
        PROP(PLANT)=PUT(PLANT,115,0)
        PROP(OYSTER)=PUT(OYSTER,115,0)
        PROP(LAMP)=PUT(LAMP,115,0)
        PROP(ROD)=PUT(ROD,115,0)
        PROP(DWARF)=PUT(DWARF,115,0)
        LOC=115
        OLDLOC=115
        NEWLOC=115

C  LEAVE THE GRATE WITH NORMAL (NON-NEGATIVE PROPERTY).

        FOO=PUT(GRATE,116,0)
        PROP(SNAKE)=PUT(SNAKE,116,1)
        PROP(BIRD)=PUT(BIRD,116,1)
        PROP(CAGE)=PUT(CAGE,116,0)
        PROP(ROD2)=PUT(ROD2,116,0)
        PROP(PILLOW)=PUT(PILLOW,116,0)

        PROP(MIRROR)=PUT(MIRROR,115,0)
        FIXED(MIRROR)=116
```

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C  ADVENTURES

C  CURRENT LIMITS:
C       9650 WORDS OF MESSAGE TEXT (LINES, LINSIZ).
C        750 TRAVEL OPTIONS (TRAVEL, TRVSIZ).
C        300 VOCABULARY WORDS (KTAB, ATAB, TABSIZ).
C        150 LOCATIONS (LTEXT, STEXT, KEY, COND, ABB, ATLOC, LOCSIZ).
C        100 OBJECTS (PLAC, PLACE, FIXD, FIXED, LINK (TWICE), PTEXT, PROP).
C         35 "ACTION" VERBS (ACTSPK, VRBSIZ).
C        205 RANDOM MESSAGES (RTEXT, RTXSIZ).
C         12 DIFFERENT PLAYER CLASSIFICATIONS (CTEXT, CVAL, CLSMAX).
C         20 HINTS, LESS 3 (HINTLC, HINTED, HINTS, HNTSIZ).
C         35 MAGIC MESSAGES (MTEXT, MAGSIZ).
C  THERE ARE ALSO LIMITS WHICH CANNOT BE EXCEEDED DUE TO THE STRUCTURE OF
C  THE DATABASE.  (E.G., THE VOCABULARY USES N/1000 TO DETERMINE WORD TYPE,
C  SO THERE CAN'T BE MORE THAN 1000 WORDS.)  THESE UPPER LIMITS ARE:
C       1000 NON-SYNONYMOUS VOCABULARY WORDS
C       300 LOCATIONS
C       100 OBJECTS

        IMPLICIT INTEGER(A-Z)
        LOGICAL DSEEN,BLKLIN,HINTED,YES,START

        COMMON /TXTCOM/ RTEXT,LINES
        COMMON /BLKCOM/ BLKLIN
        COMMON /VOCCOM/ KTAB,ATAB,TABSIZ
        COMMON /PLACOM/ ATLOC,LINK,PLACE,FIXED,HOLDNG
        COMMON /MTXCOM/ MTEXT
        COMMON /PTXCOM/ PTEXT
        COMMON /ABBCOM/ ABB
        COMMON /WIZCOM/ WKDAY,WKEND,HOLID,HBEGIN,HEND,HNAME,
        1       SHORT,MAGIC,MAGNM,LATNCY,SAVED,SAVET,SETUP

        DIMENSION LINES(9650)
        DIMENSION TRAVEL(750)
        DIMENSION KTAB(300),ATAB(300)
        DIMENSION LTEXT(150),STEXT(150),KEY(150),COND(150),ABB(150),
        1       ATLOC(150)
        DIMENSION PLAC(100),PLACE(100),FIXD(100),FIXED(100),LINK(200),
        1       PTEXT(100),PROP(100)
        DIMENSION ACTSPK(35)
        DIMENSION RTEXT(205)
        DIMENSION CTEXT(12),CVAL(12)
        DIMENSION HINTLC(20),HINTED(20),HINTS(20,4)
        DIMENSION MTEXT(35)
        DIMENSION TK(20),DSEEN(6),DLOC(6),ODLOC(6),HNAME(4)

        DATA LINSIZ/9650/,TRVSIZ/750/,TABSIZ/300/,LOCSIZ/150/,
        1  VRBSIZ/35/,RTXSIZ/205/,CLSMAX/12/,HNTSIZ/20/,MAGSIZ/35/
        DATA SETUP/0/,BLKLIN/.TRUE./

C  STATEMENT FUNCTIONS
C
C
C  TOTING(OBJ)   = TRUE IF THE OBJ IS BEING CARRIED
C  HERE(OBJ)     = TRUE IF THE OBJ IS AT "LOC" (OR IS BEING CARRIED)
C  AT(OBJ)       = TRUE IF ON EITHER SIDE OF TWO-PLACED OBJECT
C  LIQ(DUMMY)    = OBJECT NUMBER OF LIQUID IN BOTTLE
C  LIQLOC(LOC)   = OBJECT NUMBER OF LIQUID (IF ANY) AT LOC
C  BITSET(L,N)   = TRUE IF COND(L) HAS BIT N SET (BIT 0 IS UNITS BIT)
C  FORCED(LOC)   = TRUE IF LOC MOVES WITHOUT ASKING FOR INPUT (COND=2)
C  DARK(DUMMY)   = TRUE IF LOCATION "LOC" IS DARK
C  PCT(N)        = TRUE N% OF THE TIME (N INTEGER FROM 0 TO 100)
C
C  WZDARK SAYS WHETHER THE LOC HE'S LEAVING WAS DARK
C  LMWARN SAYS WHETHER HE'S BEEN WARNED ABOUT LAMP GOING DIM
C  CLOSNG SAYS WHETHER ITS CLOSING TIME YET
C  PANIC SAYS WHETHER HE'S FOUND OUT HE'S TRAPPED IN THE CAVE
C  CLOSED SAYS WHETHER WE'RE ALL THE WAY CLOSED
C  GAVEUP SAYS WHETHER HE EXITED VIA "QUIT"
C  SCORNG INDICATES TO THE SCORE ROUTINE WHETHER WE'RE DOING A "SCORE" COMMAND
C  DEMO IS TRUE IF THIS IS A PRIME-TIME DEMONSTRATION GAME
C  YEA IS RANDOM YES/NO REPLY

        LOGICAL TOTING,HERE,AT,BITSET,DARK,WZDARK,LMWARN,CLOSNG,PANIC,
        1       CLOSED,GAVEUP,SCORNG,DEMO,YEA

        TOTING(OBJ)=PLACE(OBJ).EQ.-1
        HERE(OBJ)=PLACE(OBJ).EQ.LOC.OR.TOTING(OBJ)
        AT(OBJ)=PLACE(OBJ).EQ.LOC.OR.FIXED(OBJ).EQ.LOC
        LIQ2(PBOTL)=(1-PBOTL)*WATER+(PBOTL/2)*(WATER+OIL)
        LIQ(DUMMY)=LIQ2(MAX0(PROP(BOTTLE),-1-PROP(BOTTLE)))
        LIQLOC(LOC)=LIQ2((MOD(COND(LOC)/2*2,8)-5)*MOD(COND(LOC)/4,2)+1)
        BITSET(L,N)=(COND(L).AND.SHIFT(1,N)).NE.0
        FORCED(LOC)=COND(LOC).EQ.2
        DARK(DUMMY)=MOD(COND(LOC),2).EQ.0.AND.(PROP(LAMP).EQ.0.OR.
        1       .NOT.HERE(LAMP))
        PCT(N)=RAN(100).LT.N

C  DESCRIPTION OF THE DATABASE FORMAT
C
C
C  THE DATA FILE CONTAINS SEVERAL SECTIONS.  EACH BEGINS WITH A LINE CONTAINING
C  A NUMBER IDENTIFYING THE SECTION, AND ENDS WITH A LINE CONTAINING "-1".
C
C  SECTION 1: LONG FORM DESCRIPTIONS.  EACH LINE CONTAINS A LOCATION NUMBER,
C       A TAB, AND A LINE OF TEXT.  THE SET OF (NECESSARILY ADJACENT) LINES
C       WHOSE NUMBERS ARE X FORM THE LONG DESCRIPTION OF LOCATION X.
C  SECTION 2: SHORT FORM DESCRIPTIONS.  SAME FORMAT AS LONG FORM.  NOT ALL
C       PLACES HAVE SHORT DESCRIPTIONS.
C  SECTION 3: TRAVEL TABLE.  EACH LINE CONTAINS A LOCATION NUMBER (X), A SECOND
C       LOCATION NUMBER (Y), AND A LIST OF MOTION NUMBERS (SEE SECTION 4).
C       EACH MOTION REPRESENTS A VERB WHICH WILL GO TO Y IF CURRENTLY AT X.
C       Y, IN TURN, IS INTERPRETED AS FOLLOWS.  LET M=Y/1000, N=Y MOD 1000.
C               IF N<=300       IT IS THE LOCATION TO GO TO.
C               IF 300<N<=500   N-300 IS USED IN A COMPUTED GOTO TO
C                                       A SECTION OF SPECIAL CODE.
C               IF N>500        MESSAGE N-500 FROM SECTION 6 IS PRINTED,
C                                       AND HE STAYS WHEREVER HE IS.
C       MEANWHILE, M SPECIFIES THE CONDITIONS ON THE MOTION.
C               IF M=0          IT'S UNCONDITIONAL.
C               IF 0<M<100      IT IS DONE WITH M% PROBABILITY.
C               IF M=100        UNCONDITIONAL, BUT FORBIDDEN TO DWARVES.
C               IF 100<M<=200   HE MUST BE CARRYING OBJECT M-100.
C               IF 200<M<=300   MUST BE CARRYING OR IN SAME ROOM AS M-200.
C               IF 300<M<=400   PROP(M MOD 100) MUST *NOT* BE 0.
C               IF 400<M<=500   PROP(M MOD 100) MUST *NOT* BE 1.
C               IF 500<M<=600   PROP(M MOD 100) MUST *NOT* BE 2, ETC.
C       IF THE CONDITION (IF ANY) IS NOT MET, THEN THE NEXT *DIFFERENT*
C       "DESTINATION" VALUE IS USED (UNLESS IT FAILS TO MEET *ITS* CONDITIONS,
C       IN WHICH CASE THE NEXT IS FOUND, ETC.).  TYPICALLY, THE NEXT DEST WILL
C       BE FOR ONE OF THE SAME VERBS, SO THAT ITS ONLY USE IS AS THE ALTERNATE
C       DESTINATION FOR THOSE VERBS.  FOR INSTANCE:
C               15      110022  29      31      34      35      23      43
C               15      14      29
C       THIS SAYS THAT, FROM LOC 15, ANY OF THE VERBS 29, 31, ETC., WILL TAKE
C       HIM TO 22 IF HE'S CARRYING OBJECT 10, AND OTHERWISE WILL GO TO 14.
C               11      303008  49
C               11      9       50
C       THIS SAYS THAT, FROM 11, 49 TAKES HIM TO 8 UNLESS PROP(3)=0, IN WHICH
C       CASE HE GOES TO 9.  VERB 50 TAKES HIM TO 9 REGARDLESS OF PROP(3).
C  SECTION 4: VOCABULARY.  EACH LINE CONTAINS A NUMBER (N), A TAB, AND A
C       FIVE-LETTER WORD.  CALL M=N/1000.  IF M=0, THEN THE WORD IS A MOTION
C       VERB FOR USE IN TRAVELLING (SEE SECTION 3).  ELSE, IF M=1, THE WORD IS
C       AN OBJECT.  ELSE, IF M=2, THE WORD IS AN ACTION VERB (SUCH AS "CARRY"
C       OR "ATTACK").  ELSE, IF M=3, THE WORD IS A SPECIAL CASE VERB (SUCH AS
C       "DIG") AND N MOD 1000 IS AN INDEX INTO SECTION 6.  OBJECTS FROM 50 TO
C       (CURRENTLY, ANYWAY) 79 ARE CONSIDERED TREASURES (FOR PIRATE, CLOSEOUT).
C  SECTION 5: OBJECT DESCRIPTIONS.  EACH LINE CONTAINS A NUMBER (N), A TAB,
C       AND A MESSAGE.  IF N IS FROM 1 TO 100, THE MESSAGE IS THE "INVENTORY"
C       MESSAGE FOR OBJECT N.  OTHERWISE, N SHOULD BE 000, 100, 200, ETC., AND
C       THE MESSAGE SHOULD BE THE DESCRIPTION OF THE PRECEDING OBJECT WHEN ITS
C       PROP VALUE IS N/100.  THE N/100 IS USED ONLY TO DISTINGUISH MULTIPLE
C       MESSAGES FROM MULTI-LINE MESSAGES; THE PROP INFO ACTUALLY REQUIRES ALL
C       MESSAGES FOR AN OBJECT TO BE PRESENT AND CONSECUTIVE.  PROPERTIES WHICH
C       PRODUCE NO MESSAGE SHOULD BE GIVEN THE MESSAGE ">$<".
C  SECTION 6: ARBITRARY MESSAGES.  SAME FORMAT AS SECTIONS 1, 2, AND 5, EXCEPT
C       THE NUMBERS BEAR NO RELATION TO ANYTHING (EXCEPT FOR SPECIAL VERBS
C       IN SECTION 4).
C  SECTION 7: OBJECT LOCATIONS.  EACH LINE CONTAINS AN OBJECT NUMBER AND ITS
C       INITIAL LOCATION (ZERO (OR OMITTED) IF NONE).  IF THE OBJECT IS
C       IMMOVABLE, THE LOCATION IS FOLLOWED BY A "-1".  IF IT HAS TWO LOCATIONS
C       (E.G. THE GRATE) THE FIRST LOCATION IS FOLLOWED WITH THE SECOND, AND
C       THE OBJECT IS ASSUMED TO BE IMMOVABLE.
C  SECTION 8: ACTION DEFAULTS.  EACH LINE CONTAINS AN "ACTION-VERB" NUMBER AND
C       THE INDEX (IN SECTION 6) OF THE DEFAULT MESSAGE FOR THE VERB.
C  SECTION 9: LIQUID ASSETS, ETC.  EACH LINE CONTAINS A NUMBER (N) AND UP TO 20
C       LOCATION NUMBERS.  BIT N (WHERE 0 IS THE UNITS BIT) IS SET IN COND(LOC)
C       FOR EACH LOC GIVEN.  THE COND BITS CURRENTLY ASSIGNED ARE:
C               0       LIGHT
C               1       IF BIT 2 IS ON: ON FOR OIL, OFF FOR WATER
C               2       LIQUID ASSET, SEE BIT 1
C               3       PIRATE DOESN'T GO HERE UNLESS FOLLOWING PLAYER
C       OTHER BITS ARE USED TO INDICATE AREAS OF INTEREST TO "HINT" ROUTINES:
C               4       TRYING TO GET INTO CAVE
C               5       TRYING TO CATCH BIRD
C               6       TRYING TO DEAL WITH SNAKE
C               7       LOST IN MAZE
C               8       PONDERING DARK ROOM
C               9       AT WITT'S END
C       COND(LOC) IS SET TO 2, OVERRIDING ALL OTHER BITS, IF LOC HAS FORCED
C       MOTION.
C  SECTION 10: CLASS MESSAGES.  EACH LINE CONTAINS A NUMBER (N), A TAB, AND A
C       MESSAGE DESCRIBING A CLASSIFICATION OF PLAYER.  THE SCORING SECTION
C       SELECTS THE APPROPRIATE MESSAGE, WHERE EACH MESSAGE IS CONSIDERED TO
C       APPLY TO PLAYERS WHOSE SCORES ARE HIGHER THAN THE PREVIOUS N BUT NOT
C       HIGHER THAN THIS N.  NOTE THAT THESE SCORES PROBABLY CHANGE WITH EVERY
C       MODIFICATION (AND PARTICULARLY EXPANSION) OF THE PROGRAM.
C  SECTION 11: HINTS.  EACH LINE CONTAINS A HINT NUMBER (CORRESPONDING TO A
C       COND BIT, SEE SECTION 9), THE NUMBER OF TURNS HE MUST BE AT THE RIGHT
C       LOC(S) BEFORE TRIGGERING THE HINT, THE POINTS DEDUCTED FOR TAKING THE
C       HINT, THE MESSAGE NUMBER (SECTION 6) OF THE QUESTION, AND THE MESSAGE
C       NUMBER OF THE HINT.  THESE VALUES ARE STASHED IN THE "HINTS" ARRAY.
C       HNTMAX IS SET TO THE MAX HINT NUMBER (<= HNTSIZ).  NUMBERS 1-3 ARE
C       UNUSABLE SINCE COND BITS ARE OTHERWISE ASSIGNED, SO 2 IS USED TO
C       REMEMBER IF HE'S READ THE CLUE IN THE REPOSITORY, AND 3 IS USED TO
C       REMEMBER WHETHER HE ASKED FOR INSTRUCTIONS (GETS MORE TURNS, BUT LOSES
C       POINTS).
C  SECTION 12: MAGIC MESSAGES. IDENTICAL TO SECTION 6 EXCEPT PUT IN A SEPARATE
C       SECTION FOR EASIER REFERENCE.  MAGIC MESSAGES ARE USED BY THE STARTUP,
C       MAINTENANCE MODE, AND RELATED ROUTINES.
C  SECTION 0: END OF DATABASE.


C  READ THE DATABASE IF WE HAVE NOT YET DONE SO

        IF(SETUP.NE.0)GOTO 1100
        TYPE 1000
1000    FORMAT(' INITIALISING...')

C  CLEAR OUT THE VARIOUS TEXT-POINTER ARRAYS.  ALL TEXT IS STORED IN ARRAY
C  LINES; EACH LINE IS PRECEDED BY A WORD POINTING TO THE NEXT POINTER (I.E.
C  THE WORD FOLLOWING THE END OF THE LINE).  THE POINTER IS NEGATIVE IF THIS IS
C  FIRST LINE OF A MESSAGE.  THE TEXT-POINTER ARRAYS CONTAIN INDICES OF
C  POINTER-WORDS IN LINES.  STEXT(N) IS SHORT DESCRIPTION OF LOCATION N.
C  LTEXT(N) IS LONG DESCRIPTION.  PTEXT(N) POINTS TO MESSAGE FOR PROP(N)=0.
C  SUCCESSIVE PROP MESSAGES ARE FOUND BY CHASING POINTERS.  RTEXT CONTAINS
C  SECTION 6'S STUFF.  CTEXT(N) POINTS TO A PLAYER-CLASS MESSAGE.  MTEXT IS FOR
C  SECTION 12.  WE ALSO CLEAR COND.  SEE DESCRIPTION OF SECTION 9 FOR DETAILS.

        DO 1001 I=1,300
        IF(I.LE.100)PTEXT(I)=0
        IF(I.LE.RTXSIZ)RTEXT(I)=0
        IF(I.LE.CLSMAX)CTEXT(I)=0
        IF(I.LE.MAGSIZ)MTEXT(I)=0
        IF(I.GT.LOCSIZ)GOTO 1001
        STEXT(I)=0
        LTEXT(I)=0
        COND(I)=0
1001    CONTINUE

        CALL IFILE(1,'TEXT')
        SETUP=1
        LINUSE=1
        TRVS=1
        CLSSES=1

C  START NEW DATA SECTION.  SECT IS THE SECTION NUMBER.

1002    READ(1,1003)SECT
1003    FORMAT(G)
        OLDLOC=-1
        GOTO(1100,1004,1004,1030,1040,1004,1004,1050,1060,1070,1004,
        1       1080,1004) (SECT+1)
C               (0)  (1)  (2)  (3)  (4)  (5)  (6)  (7)  (8)  (9)  (10)
C               (11) (12)
        CALL BUG(9)

C  SECTIONS 1, 2, 5, 6, 10, 12.  READ MESSAGES AND SET UP POINTERS.
```

```
1004    READ(1,1005)LOC,(LINES(J),J=LINUSE+1,LINUSE+14),KK
1005    FORMAT(1G,15A5)
        IF(KK.NE.' ')CALL BUG(0)
        IF(LOC.EQ.-1)GOTO 1002
        DO 1006 K=1,14
        KK=LINUSE+15-K
        IF(LINES(KK).NE.' ')GOTO 1007
1006    CONTINUE
        IF(LOC.EQ.0)GOTO 1004
C  ABOVE KLUGE IS TO AVOID F40 BUG IF CRLF BROKEN ACROSS RECORD BOUNDARY
        CALL BUG(1)
1007    LINES(LINUSE)=KK+1
        IF(LOC.EQ.OLDLOC)GOTO 1020
        LINES(LINUSE)=-LINES(LINUSE)

        IF(SECT.EQ.12)GOTO 1013
        IF(SECT.EQ.10)GOTO 1012
        IF(SECT.EQ.6)GOTO 1011
        IF(SECT.EQ.5)GOTO 1010
        IF(SECT.EQ.1)GOTO 1008

        STEXT(LOC)=LINUSE
        GOTO 1020

1008    LTEXT(LOC)=LINUSE
        GOTO 1020

1010    IF(LOC.GT.0.AND.LOC.LE.100)PTEXT(LOC)=LINUSE
        GOTO 1020

1011    IF(LOC.GT.RTXSIZ)CALL BUG(6)
        RTEXT(LOC)=LINUSE
        GOTO 1020

1012    CTEXT(CLSSES)=LINUSE
        CVAL(CLSSES)=LOC
        CLSSES=CLSSES+1
        GOTO 1020

1013    IF(LOC.GT.MAGSIZ)CALL BUG(6)
        MTEXT(LOC)=LINUSE

1020    LINUSE=KK+1
        LINES(LINUSE)=-1
        OLDLOC=LOC
        IF(LINUSE+14.GT.LINSIZ)CALL BUG(2)
        GOTO 1004

C  THE STUFF FOR SECTION 3 IS ENCODED HERE.  EACH "FROM-LOCATION" GETS A
C  CONTIGUOUS SECTION OF THE "TRAVEL" ARRAY.  EACH ENTRY IN TRAVEL IS
C  NEWLOC*1000 + KEYWORD (FROM SECTION 4, MOTION VERBS), AND IS NEGATED IF
C  THIS IS THE LAST ENTRY FOR THIS LOCATION.  KEY(N) IS THE INDEX IN TRAVEL
C  OF THE FIRST OPTION AT LOCATION N.

1030    READ(1,1031)LOC,NEWLOC,TK
1031    FORMAT(99G)
        IF(LOC.EQ.0)GOTO 1030
C  ABOVE KLUGE IS TO AVOID AFOREMENTIONED F40 BUG
        IF(LOC.EQ.-1)GOTO 1002


C  HERE WE READ IN THE VOCABULARY.  KTAB(N) IS THE WORD NUMBER, ATAB(N) IS
C  THE CORRESPONDING WORD.  THE -1 AT THE END OF SECTION 4 IS LEFT IN KTAB
C  AS AN END-MARKER.  THE WORDS ARE GIVEN A MINIMAL HASH TO MAKE READING THE
C  CORE-IMAGE HARDER.  NOTE THAT '/7-08' HAD BETTER NOT BE IN THE LIST, SINCE
C  IT COULD HASH TO -1.

1040    DO 1042 TABNDX=1,TABSIZ
1043    READ(1,1041)KTAB(TABNDX),ATAB(TABNDX)
1041    FORMAT(G,A5)
        IF(KTAB(TABNDX).EQ.0)GOTO 1043
C  ABOVE KLUGE IS TO AVOID AFOREMENTIONED F40 BUG
        IF(KTAB(TABNDX).EQ.-1)GOTO 1002
1042    ATAB(TABNDX)=ATAB(TABNDX).XOR.'PHROG'
        CALL BUG(4)

C  READ IN THE INITIAL LOCATIONS FOR EACH OBJECT.  ALSO THE IMMOVABILITY INFO.
C  PLAC CONTAINS INITIAL LOCATIONS OF OBJECTS.  FIXD IS -1 FOR IMMOVABLE
C  OBJECTS (INCLUDING THE SNAKE), OR = SECOND LOC FOR TWO-PLACED OBJECTS.

1050    READ(1,1031)OBJ,J,K
        IF(OBJ.EQ.-1)GOTO 1002
        PLAC(OBJ)=J
        FIXD(OBJ)=K
        GOTO 1050

C  READ DEFAULT MESSAGE NUMBERS FOR ACTION VERBS, STORE IN ACTSPK.

1060    READ(1,1031)VERB,J
        IF(VERB.EQ.-1)GOTO 1002
        ACTSPK(VERB)=J
        GOTO 1060

C  READ INFO ABOUT AVAILABLE LIQUIDS AND OTHER CONDITIONS, STORE IN COND.

1070    READ(1,1031)K,TK
        IF(K.EQ.-1)GOTO 1002
        DO 1071 I=1,20
        LOC=TK(I)
        IF(LOC.EQ.0)GOTO 1070
        IF(BITSET(LOC,K))CALL BUG(8)
1071    COND(LOC)=COND(LOC)+SHIFT(1,K)
        GOTO 1070

C  READ DATA FOR HINTS.

1080    HNTMAX=0
1081    READ(1,1031)K,TK
        IF(K.EQ.-1)GOTO 1002
        IF(K.EQ.0)GOTO 1081
        IF(K.LT.0.OR.K.GT.HNTSIZ)CALL BUG(7)
        DO 1083 I=1,4
1083    HINTS(K,I)=TK(I)
        HNTMAX=MAX0(HNTMAX,K)
        GOTO 1081

C  FINISH CONSTRUCTING INTERNAL DATA FORMAT

C  IF SETUP=2 WE DON'T NEED TO DO THIS.  IT'S ONLY NECESSARY IF WE HAVEN'T DONE
C  IT AT ALL OR IF THE PROGRAM HAS BEEN RUN SINCE THEN.

1100    IF(SETUP.EQ.2)GOTO 1
        IF(SETUP.EQ.-1)GOTO 8305

C  HAVING READ IN THE DATABASE, CERTAIN THINGS ARE NOW CONSTRUCTED.  PROPS ARE
C  SET TO ZERO.  WE FINISH SETTING UP COND BY CHECKING FOR FORCED-MOTION TRAVEL
C  ENTRIES.  THE PLAC AND FIXD ARRAYS ARE USED TO SET UP ATLOC(N) AS THE FIRST
C  OBJECT AT LOCATION N, AND LINK(OBJ) AS THE NEXT OBJECT AT THE SAME LOCATION
C  AS OBJ.  (OBJ>100 INDICATES THAT FIXED(OBJ-100)=LOC; LINK(OBJ) IS STILL THE
C  CORRECT LINK TO USE.)  ABB IS ZEROED; IT CONTROLS WHETHER THE ABBREVIATED
C  DESCRIPTION IS PRINTED.  COUNTS MOD 5 UNLESS "LOOK" IS USED.

        DO 1101 I=1,100
        PLACE(I)=0
        PROP(I)=0
        LINK(I)=0
1101    LINK(I+100)=0

        DO 1102 I=1,LOCSIZ
        ABB(I)=0
        IF(LTEXT(I).EQ.0.OR.KEY(I).EQ.0)GOTO 1102
        K=KEY(I)
        IF(MOD(IABS(TRAVEL(K)),1000).EQ.1)COND(I)=2
1102    ATLOC(I)=0

C  SET UP THE ATLOC AND LINK ARRAYS AS DESCRIBED ABOVE.  WE'LL USE THE DROP
C  SUBROUTINE, WHICH PREFACES NEW OBJECTS ON THE LISTS.  SINCE WE WANT THINGS
C  IN THE OTHER ORDER, WE'LL RUN THE LOOP BACKWARDS.  IF THE OBJECT IS IN TWO
C  LOCS, WE DROP IT TWICE.  THIS ALSO SETS UP "PLACE" AND "FIXED" AS COPIES OF
C  "PLAC" AND "FIXD".  ALSO, SINCE TWO-PLACED OBJECTS ARE TYPICALLY BEST

        CALL RSPEAK(3)
        CALL DROP(AXE,LOC)
        GOTO 2000

C  THINGS ARE IN FULL SWING.  MOVE EACH DWARF AT RANDOM, EXCEPT IF HE'S SEEN US
C  HE STICKS WITH US.  DWARVES NEVER GO TO LOCS <15.  IF WANDERING AT RANDOM,
C  THEY DON'T BACK UP UNLESS THERE'S NO ALTERNATIVE.  IF THEY DON'T HAVE TO
C  MOVE, THEY ATTACK.  AND, OF COURSE, DEAD DWARVES DON'T DO MUCH OF ANYTHING.

6010    DTOTAL=0
        ATTACK=0
        STICK=0
        DO 6030 I=1,6
        IF(DLOC(I).EQ.0)GOTO 6030
        J=1
        KK=DLOC(I)
        KK=KEY(KK)
        IF(KK.EQ.0)GOTO 6016
6012    NEWLOC=MOD(IABS(TRAVEL(KK))/1000,1000)
        IF(NEWLOC.GT.300.OR.NEWLOC.LT.15.OR.NEWLOC.EQ.ODLOC(I)
        1       .OR.(J.GT.1.AND.NEWLOC.EQ.TK(J-1)).OR.J.GE.20
        2       .OR.NEWLOC.EQ.DLOC(I).OR.FORCED(NEWLOC)
        3       .OR.(I.EQ.6.AND.BITSET(NEWLOC,3))
        4       .OR.IABS(TRAVEL(KK))/1000000.EQ.100)GOTO 6014
        TK(J)=NEWLOC
        J=J+1
6014    KK=KK+1
        IF(TRAVEL(KK-1).GE.0)GOTO 6012
6016    TK(J)=ODLOC(I)
        IF(J.GE.2)J=J-1
        J=1+RAN(J)
        ODLOC(I)=DLOC(I)
        DLOC(I)=TK(J)
        DSEEN(I)=(DSEEN(I).AND.LOC.GE.15)
        1       .OR.(DLOC(I).EQ.LOC.OR.ODLOC(I).EQ.LOC)
        IF(.NOT.DSEEN(I))GOTO 6030
        DLOC(I)=LOC
        IF(I.NE.6)GOTO 6027

C  THE PIRATE'S SPOTTED HIM.  HE LEAVES HIM ALONE ONCE WE'VE FOUND CHEST.
C  K COUNTS IF A TREASURE IS HERE.  IF NOT, AND TALLY=TALLY2 PLUS ONE FOR
C  AN UNSEEN CHEST, LET THE PIRATE BE SPOTTED.

        IF(LOC.EQ.CHLOC.OR.PROP(CHEST).GE.0)GOTO 6030
        K=0
        DO 6020 J=50,MAXTRS
C  PIRATE WON'T TAKE PYRAMID FROM PLOVER ROOM OR DARK ROOM (TOO EASY!).
        IF(J.EQ.PYRAM.AND.(LOC.EQ.PLAC(PYRAM)
        1       .OR.LOC.EQ.PLAC(EMRALD)))GOTO 6020
        IF(TOTING(J))GOTO 6022
6020    IF(HERE(J))K=1
        IF(TALLY.EQ.TALLY2+1.AND.K.EQ.0.AND.PLACE(CHEST).EQ.0
        1       .AND.HERE(LAMP).AND.PROP(LAMP).EQ.1)GOTO 6025
        IF(ODLOC(6).NE.DLOC(6).AND.PCT(20))CALL RSPEAK(127)
        GOTO 6030

6022    CALL RSPEAK(128)
C  DON'T STEAL CHEST BACK FROM TROLL!
        IF(PLACE(MESSAG).EQ.0)CALL MOVE(CHEST,CHLOC)
        CALL MOVE(MESSAG,CHLOC2)
        DO 6023 J=50,MAXTRS
        IF(J.EQ.PYRAM.AND.(LOC.EQ.PLAC(PYRAM)
        1       .OR.LOC.EQ.PLAC(EMRALD)))GOTO 6023
        IF(AT(J).AND.FIXED(J).EQ.0)CALL CARRY(J,LOC)
        IF(TOTING(J))CALL DROP(J,CHLOC)
6023    CONTINUE
6024    DLOC(6)=CHLOC
        ODLOC(6)=CHLOC
        DSEEN(6)=.FALSE.
        GOTO 6030

6025    CALL RSPEAK(186)
        CALL MOVE(CHEST,CHLOC)
        CALL MOVE(MESSAG,CHLOC2)
        GOTO 6024

C  THIS THREATENING LITTLE DWARF IS IN THE ROOM WITH HIM!

6027    DTOTAL=DTOTAL+1
        IF(ODLOC(I).NE.DLOC(I))GOTO 6030
        ATTACK=ATTACK+1
        IF(KNFLOC.GE.0)KNFLOC=LOC
        IF(RAN(1000).LT.95*(DFLAG-2))STICK=STICK+1
6030    CONTINUE

C  NOW WE KNOW WHAT'S HAPPENING.  LET'S TELL THE POOR SUCKER ABOUT IT.

        IF(DTOTAL.EQ.0)GOTO 2000
        IF(DTOTAL.EQ.1)GOTO 75
        TYPE 67,DTOTAL
```

```
67      FORMAT(/' THERE ARE ',I1,' THREATENING LITTLE DWARVES IN THE'
        1       ,' ROOM WITH YOU.')
        GOTO 77
75      CALL RSPEAK(4)
77      IF(ATTACK.EQ.0)GOTO 2000
        IF(DFLAG.EQ.2)DFLAG=3
C  IF SAVED NOT = -1, HE BYPASSED THE "START" CALL.  DWARVES GET *VERY* MAD!
        IF(SAVED.NE.-1)DFLAG=20
        IF(ATTACK.EQ.1)GOTO 79
        TYPE 78,ATTACK
78      FORMAT(/' ',I1,' OF THEM THROW KNIVES AT YOU!')
        K=6
82      IF(STICK.GT.1)GOTO 83
        CALL RSPEAK(K+STICK)
        IF(STICK.EQ.0)GOTO 2000
        GOTO 84
83      TYPE 68,STICK
68      FORMAT(/' ',I1,' OF THEM GET YOU!')
84      OLDLC2=LOC
        GOTO 99

79      CALL RSPEAK(5)
        K=52

C  ROUTINES FOR PERFORMING THE VARIOUS ACTION VERBS

C  STATEMENT NUMBERS IN THIS SECTION ARE 8000 FOR INTRANSITIVE VERBS, 9000 FOR
C  TRANSITIVE, PLUS TEN TIMES THE VERB NUMBER.  MANY INTRANSITIVE VERBS USE THE
C  TRANSITIVE CODE, AND SOME VERBS USE CODE FOR OTHER VERBS, AS NOTED BELOW.

C  RANDOM INTRANSITIVE VERBS COME HERE.  CLEAR OBJ JUST IN CASE (SEE "ATTACK").

8000    CALL A5TOA1(WD1,WD1X,'WHAT?',TK,K)
        TYPE 8002,(TK(I),I=1,K)
8002    FORMAT(/' ',20A1)
        OBJ=0
        GOTO 2600

C  CARRY, NO OBJECT GIVEN YET.  OK IF ONLY ONE OBJECT PRESENT.

8010    IF(ATLOC(LOC).EQ.0.OR.LINK(ATLOC(LOC)).NE.0)GOTO 8000
        DO 8012 I=1,5
        IF(DLOC(I).EQ.LOC.AND.DFLAG.GE.2)GOTO 8000
8012    CONTINUE
        OBJ=ATLOC(LOC)

C  CARRY AN OBJECT.  SPECIAL CASES FOR BIRD AND CAGE (IF BIRD IN CAGE, CAN'T
C  TAKE ONE WITHOUT THE OTHER.  LIQUIDS ALSO SPECIAL, SINCE THEY DEPEND ON
C  STATUS OF BOTTLE.  ALSO VARIOUS SIDE EFFECTS, ETC.

9010    IF(TOTING(OBJ))GOTO 2011
        SPK=25
        IF(OBJ.EQ.PLANT.AND.PROP(PLANT).LE.0)SPK=115
        IF(OBJ.EQ.BEAR.AND.PROP(BEAR).EQ.1)SPK=169
        IF(OBJ.EQ.CHAIN.AND.PROP(BEAR).NE.0)SPK=170
        IF(FIXED(OBJ).NE.0)GOTO 2011
        IF(OBJ.NE.WATER.AND.OBJ.NE.OIL)GOTO 9017
        IF(HERE(BOTTLE).AND.LIQ(0).EQ.OBJ)GOTO 9018
        OBJ=BOTTLE
        IF(TOTING(BOTTLE).AND.PROP(BOTTLE).EQ.1)GOTO 9220
        IF(PROP(BOTTLE).NE.1)SPK=105
        IF(.NOT.TOTING(BOTTLE))SPK=104
        GOTO 2011
9018    OBJ=BOTTLE
9017    IF(HOLDNG.LT.7)GOTO 9016
        CALL RSPEAK(92)
        GOTO 2012
9016    IF(OBJ.NE.BIRD)GOTO 9014
        IF(PROP(BIRD).NE.0)GOTO 9014
        IF(.NOT.TOTING(ROD))GOTO 9013
        CALL RSPEAK(26)
        GOTO 2012
9013    IF(TOTING(CAGE))GOTO 9015
        CALL RSPEAK(27)
        GOTO 2012
9015    PROP(BIRD)=1
9014    IF((OBJ.EQ.BIRD.OR.OBJ.EQ.CAGE).AND.PROP(BIRD).NE.0)
        1       CALL CARRY(BIRD+CAGE-OBJ,LOC)
        CALL CARRY(OBJ,LOC)
        K=LIQ(0)
        IF(OBJ.EQ.BOTTLE.AND.K.NE.0)PLACE(K)=-1
        GOTO 2009

C  DISCARD OBJECT.  "THROW" ALSO COMES HERE FOR MOST OBJECTS.  SPECIAL CASES FOR
C  BIRD (MIGHT ATTACK SNAKE OR DRAGON) AND CAGE (MIGHT CONTAIN BIRD) AND VASE.
C  DROP COINS AT VENDING MACHINE FOR EXTRA BATTERIES.

9020    IF(TOTING(ROD2).AND.OBJ.EQ.ROD.AND..NOT.TOTING(ROD))OBJ=ROD2
        IF(.NOT.TOTING(OBJ))GOTO 2011
        IF(OBJ.NE.BIRD.OR..NOT.HERE(SNAKE))GOTO 9024
        CALL RSPEAK(30)
        IF(CLOSED)GOTO 19000
        CALL DSTROY(SNAKE)
C  SET PROP FOR USE BY TRAVEL OPTIONS
        PROP(SNAKE)=1
9021    K=LIQ(0)
        IF(K.EQ.OBJ)OBJ=BOTTLE
        IF(OBJ.EQ.BOTTLE.AND.K.NE.0)PLACE(K)=0
        IF(OBJ.EQ.CAGE.AND.PROP(BIRD).NE.0)CALL DROP(BIRD,LOC)
        IF(OBJ.EQ.BIRD)PROP(BIRD)=0
        CALL DROP(OBJ,LOC)
        GOTO 2012

9024    IF(OBJ.NE.COINS.OR..NOT.HERE(VEND))GOTO 9025
        CALL DSTROY(COINS)
        CALL DROP(BATTER,LOC)
        CALL PSPEAK(BATTER,0)
        GOTO 2012

9025    IF(OBJ.NE.BIRD.OR..NOT.AT(DRAGON).OR.PROP(DRAGON).NE.0)GOTO 9026
        CALL RSPEAK(154)
        CALL DSTROY(BIRD)
        PROP(BIRD)=0
        IF(PLACE(SNAKE).EQ.PLAC(SNAKE))TALLY2=TALLY2+1
        GOTO 2012

9026    IF(OBJ.NE.BEAR.OR..NOT.AT(TROLL))GOTO 9027
        CALL RSPEAK(163)
        CALL MOVE(TROLL,0)
        CALL MOVE(TROLL+100,0)
        CALL MOVE(TROLL2,PLAC(TROLL))
        CALL MOVE(TROLL2+100,FIXD(TROLL))
        CALL JUGGLE(CHASM)
        PROP(TROLL)=2
        GOTO 9021

9027    IF(OBJ.EQ.VASE.AND.LOC.NE.PLAC(PILLOW))GOTO 9028
        CALL RSPEAK(54)
        GOTO 9021

9028    PROP(VASE)=2
        IF(AT(PILLOW))PROP(VASE)=0
        CALL PSPEAK(VASE,PROP(VASE)+1)
        IF(PROP(VASE).NE.0)FIXED(VASE)=-1
        GOTO 9021

9021    K=LIQ(0)
        IF(K.EQ.OBJ)OBJ=BOTTLE
        IF(OBJ.EQ.BOTTLE.AND.K.NE.0)PLACE(K)=0
        IF(OBJ.EQ.CAGE.AND.PROP(BIRD).NE.0)CALL DROP(BIRD,LOC)
        IF(OBJ.EQ.BIRD)PROP(BIRD)=0
        CALL DROP(OBJ,LOC)
        GOTO 2012

9024    IF(OBJ.NE.COINS.OR..NOT.HERE(VEND))GOTO 9025
        CALL DSTROY(COINS)
        CALL DROP(BATTER,LOC)
        CALL PSPEAK(BATTER,0)
        GOTO 2012

9025    IF(OBJ.NE.BIRD.OR..NOT.AT(DRAGON).OR.PROP(DRAGON).NE.0)GOTO 9026
        CALL RSPEAK(154)
        CALL DSTROY(BIRD)
        PROP(BIRD)=0
        IF(PLACE(SNAKE).EQ.PLAC(SNAKE))TALLY2=TALLY2+1
        GOTO 2012

9026    IF(OBJ.NE.BEAR.OR..NOT.AT(TROLL))GOTO 9027
        CALL RSPEAK(163)
        CALL MOVE(TROLL,0)
        CALL MOVE(TROLL+100,0)
        CALL MOVE(TROLL2,PLAC(TROLL))
        CALL MOVE(TROLL2+100,FIXD(TROLL))
        CALL JUGGLE(CHASM)
        PROP(TROLL)=2
        GOTO 9021

9027    IF(OBJ.EQ.VASE.AND.LOC.NE.PLAC(PILLOW))GOTO 9028
        CALL RSPEAK(54)
        GOTO 9021

9028    PROP(VASE)=2
        IF(AT(PILLOW))PROP(VASE)=0
        CALL PSPEAK(VASE,PROP(VASE)+1)
        IF(PROP(VASE).NE.0)FIXED(VASE)=-1
        GOTO 9021

C  SAY.  ECHO WD2 (OR WD1 IF NO WD2 (SAY WHAT?, ETC.).)  MAGIC WORDS OVERRIDE.

9030    CALL A5TOA1(WD2,WD2X,'".',TK,K)
        IF(WD2.EQ.0)CALL A5TOA1(WD1,WD1X,'".',TK,K)
        IF(WD2.NE.0)WD1=WD2
        I=VOCAB(WD1,-1)
        IF(I.EQ.62.OR.I.EQ.65.OR.I.EQ.71.OR.I.EQ.2025)GOTO 9035
        TYPE 9032,(TK(I),I=1,K)
9032    FORMAT(/' OKAY, "',20A1)
        GOTO 2012

9035    WD2=0
        OBJ=0
        GOTO 2630

C  LOCK, UNLOCK, NO OBJECT GIVEN.  ASSUME VARIOUS THINGS IF PRESENT.

8040    SPK=28
        IF(HERE(CLAM))OBJ=CLAM
        IF(HERE(OYSTER))OBJ=OYSTER
        IF(AT(DOOR))OBJ=DOOR
        IF(AT(GRATE))OBJ=GRATE
        IF(OBJ.NE.0.AND.HERE(CHAIN))GOTO 8000
        IF(HERE(CHAIN))OBJ=CHAIN
        IF(OBJ.EQ.0)GOTO 2011

C  LOCK, UNLOCK OBJECT.  SPECIAL STUFF FOR OPENING CLAM/OYSTER AND FOR CHAIN.

9040    IF(OBJ.EQ.CLAM.OR.OBJ.EQ.OYSTER)GOTO 9046
        IF(OBJ.EQ.DOOR)SPK=111
        IF(OBJ.EQ.DOOR.AND.PROP(DOOR).EQ.1)SPK=54
        IF(OBJ.EQ.CAGE)SPK=32
        IF(OBJ.EQ.KEYS)SPK=55
        IF(OBJ.EQ.GRATE.OR.OBJ.EQ.CHAIN)SPK=31
        IF(SPK.NE.31.OR..NOT.HERE(KEYS))GOTO 2011
        IF(OBJ.EQ.CHAIN)GOTO 9048
        IF(.NOT.CLOSNG)GOTO 9043
        K=130
        IF(.NOT.PANIC)CLOCK2=15
        PANIC=.TRUE.
        GOTO 2010

9043    K=34+PROP(GRATE)
        PROP(GRATE)=1
        IF(VERB.EQ.LOCK)PROP(GRATE)=0
        K=K+2*PROP(GRATE)
        GOTO 2010

C  CLAM/OYSTER.
9046    K=0
        IF(OBJ.EQ.OYSTER)K=1
        SPK=124+K
        IF(TOTING(OBJ))SPK=120+K
        IF(.NOT.TOTING(TRIDNT))SPK=122+K
        IF(VERB.EQ.LOCK)SPK=61
        IF(SPK.NE.124)GOTO 2011
        CALL DSTROY(CLAM)
        CALL DROP(OYSTER,LOC)
        CALL DROP(PEARL,105)
        GOTO 2011

C  CHAIN.
9048    IF(VERB.EQ.LOCK)GOTO 9049
        SPK=171
        IF(PROP(BEAR).EQ.0)SPK=41
        IF(PROP(CHAIN).EQ.0)SPK=37
        IF(SPK.NE.171)GOTO 2011
        PROP(CHAIN)=0
```

```
123     YOU'RE IN CORRIDOR.
124     YOU'RE AT FORK IN PATH.
125     YOU'RE AT JUNCTION WITH WARM WALLS.
126     YOU'RE AT BREATH-TAKING VIEW.
127     YOU'RE IN CHAMBER OF BOULDERS.
128     YOU'RE IN LIMESTONE PASSAGE.
129     YOU'RE IN FRONT OF BARREN ROOM.
130     YOU'RE IN BARREN ROOM.
-1
3
1       2       2       44      29
1       3       3       12      19      43
1       4       5       13      14      46      30
1       5       6       45      43
1       8       63
2       1       2       12      7       43      45      30
2       5       6       45      46
3       1       3       11      32      44
3       11      62
3       33      65
3       79      5       14
4       1       4       12      45
4       5       6       43      44      29
4       7       5       46      30
4       8       63
5       4       9       43      30
5       50005   6       7       45
5       6       6
5       5       44      46
6       1       2       45
6       4       9       43      44      30
6       5       6       46
7       1       12
7       4       4       45
7       5       6       43      44
7       8       5       15      16      46
7       595     60      14      30
8       5       6       43      44      46
8       1       12
8       7       4       13      45
8       303009  3       19      30
8       593     3
9       303008  11      29
9       593     11
9       10      17      18      19      44
9       14      31
9       11      51
10      9       11      20      21      43
10      11      19      22      44      51
10      14      31
11      303008  63
11      9       64
11      10      17      18      23      24      43
11      12      25      19      29      44
11      3       62
11      14      31
12      303008  63
12      9       64
12      11      30      43      51
12      13      19      29      44


12      14      31
13      303008  63
13      9       64
13      11      51
13      12      25      43
13      14      23      31      44
14      303008  63
14      9       64
14      11      51
14      13      23      43
14      150020  30      31      34
14      15      30
14      16      33      44
15      18      36      46
15      17      7       38      44
15      19      10      30      45
15      150022  29      31      34      35      23      43
15      14      29
15      34      55
16      14      1
17      15      38      43
17      312596  39
17      412021  7
17      412597  41      42      44      69
17      27      41
18      15      38      11      45
19      15      10      29      43
19      311028  45      36
19      311029  46      37
19      311030  44      7
19      32      45
19      35074   49
19      211032  49
19      74      66
20      0       1
21      0       1
22      15      1
23      67      43      42
23      68      44      61
23      25      30      31
23      648     52
24      67      29      11
25      23      29      11
25      724031  56


8       593     3
9       303008  11      29
9       593     11
9       10      17      18      19      44
9       14      31
9       11      51
10      9       11      20      21      43
10      11      19      22      44      51
10      14      31
11      303008  63
11      9       64
11      10      17      18      23      24      43
11      12      25      19      29      44
11      3       62
11      14      31
12      303008  63
12      9       64
12      11      30      43      51
12      13      19      29      44


12      14      31
13      303008  63
13      9       64
13      11      51
13      12      25      43
13      14      23      31      44
14      303008  63
14      9       64
14      11      51
14      13      23      43
14      150020  30      31      34
14      15      30
14      16      33      44
15      18      36      46
15      17      7       38      44
15      19      10      30      45
15      150022  29      31      34      35      23      43
15      14      29
15      34      55
16      14      1
17      15      38      43
17      312596  39
17      412021  7
17      412597  41      42      44      69
17      27      41
18      15      38      11      45
19      15      10      29      43
19      311028  45      36
19      311029  46      37
19      311030  44      7
19      32      45
19      35074   49
19      211032  49
19      74      66
20      0       1
21      0       1
22      15      1
23      67      43      42
23      68      44      61
23      25      30      31
23      648     52
24      67      29      11
25      23      29      11
25      724031  56
25      26      56
26      88      1
27      312596  39
27      412021  7
27      412597  41      42      43      69
27      17      41
27      40      45
27      41      44
28      19      38      11      46
28      33      45      55
28      36      30      52
29      19      38      11      45
30      19      38      11      43
30      62      44      29
31      524089  1
31      90      1
```

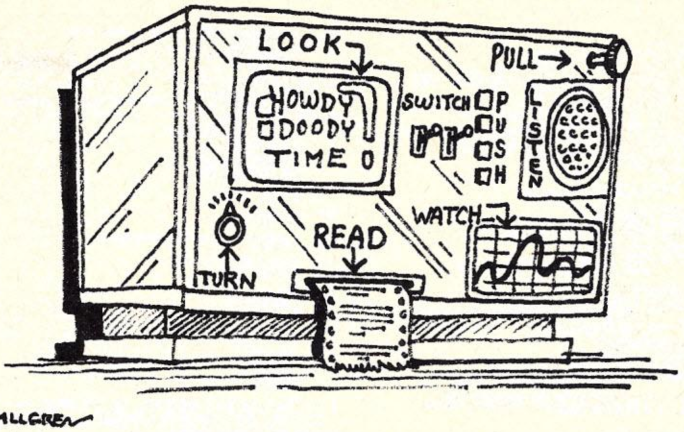
```
        SUBROUTINE BUG(NUM)
        IMPLICIT INTEGER(A-Z)

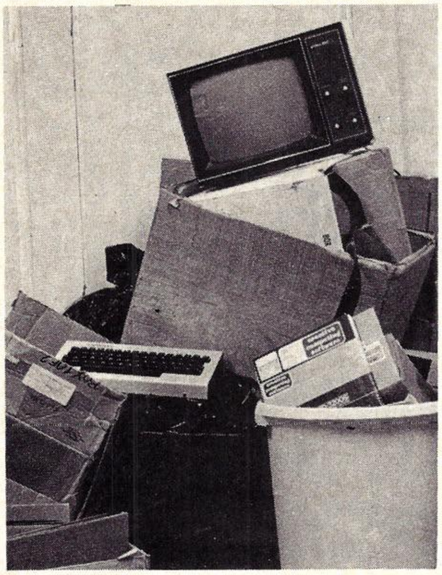
C  THE FOLLOWING CONDITIONS ARE CURRENTLY CONSIDERED FATAL BUGS.  NUMBERS < 20
C  ARE DETECTED WHILE READING THE DATABASE; THE OTHERS OCCUR AT "RUN TIME".
C       0       MESSAGE LINE > 70 CHARACTERS
C       1       NULL LINE IN MESSAGE
C       2       TOO MANY WORDS OF MESSAGES
C       3       TOO MANY TRAVEL OPTIONS
C       4       TOO MANY VOCABULARY WORDS
C       5       REQUIRED VOCABULARY WORD NOT FOUND
C       6       TOO MANY RTEXT OR MTEXT MESSAGES
C       7       TOO MANY HINTS
C       8       LOCATION HAS COND BIT BEING SET TWICE
C       9       INVALID SECTION NUMBER IN DATABASE
C       20      SPECIAL TRAVEL (500>L>300) EXCEEDS GOTO LIST
C       21      RAN OFF END OF VOCABULARY TABLE
C       22      VOCABULARY TYPE (N/1000) NOT BETWEEN 0 AND 3
C       23      INTRANSITIVE ACTION VERB EXCEEDS GOTO LIST


C       24      TRANSITIVE ACTION VERB EXCEEDS GOTO LIST
C       25      CONDITIONAL TRAVEL ENTRY WITH NO ALTERNATIVE
C       26      LOCATION HAS NO TRAVEL ENTRIES
C       27      HINT NUMBER EXCEEDS GOTO LIST
C       28      INVALID MONTH RETURNED BY DATE FUNCTION

        TYPE 1, NUM
1       FORMAT (' FATAL ERROR, SEE SOURCE CODE FOR INTERPRETATION.'/
        1       ' PROBABLE CAUSE: ERRONEOUS INFO IN DATABASE.'/
        2       ' ERROR CODE =',I2/)
        STOP
        END
```

# Compleat Computer Catalogue





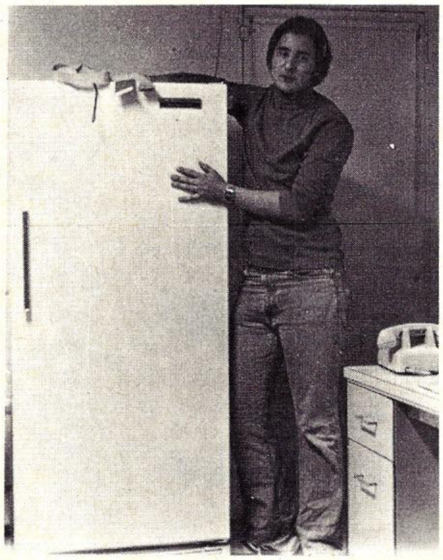
### TRASH-80 Computer

The TRASH-80 by Hua Kim Electroniks of Korea is an amazing low cost system that is fully hardware and software compatible with the world's most popular TRS-80 microcomputer. Includes a special video monitor, keyboard, and optional bit bucket for recycling discarded data. Don't waste money on an inferior and more expensive American imitation of the real cheap plastic throwaway computer. Features electric blanket interface and bar code reader and ZTRASH machine language monitor not available on Amerikan TRS-80, either.

Hua Kim Electroniks, Soul, Korea.

### Cray-2 Computer

The newest Cray computer is capable of well over 700 trillion floating point operations per second (abbrev.: floating point operations per sec.) in sustained bursts when equipped with the GT Option. Special cooling techniques enable extremely high component densities in its design. Speed is what separates the real computers from the toys, a good point to remember next time you buy a family car, too. The Greyhound BUS™ structure prevents early obsolesence and you can be sure the TRS-80 hacks won't have anything like it for years.



Interface cables for printers, modems, and other standard I/O devices (such as the Department of Defense communications satellite system) are available on the standard stripped down unit. Optional extras include a shelf for storage of a six-pack of your favorite beverage and an ice-maker. According to Cray, future computers will include a unit that looks like a hide-a-bed and a micro in the shape of an electric can opener. The first Cray-2 system is slated to go to Columbia Teacher's College which will try to analyze why the computer is not suitable for educators.

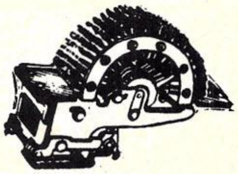
Cray, Menasha, WI.

### Personal Computer

The Executioner, the latest product from Compudata Dynalogic Electrobyte Systems Softwaretech Consultantshops, may be the ultimate in personal computing power. The extreme speed and bandwidth of the system (executes 200 people in 450 nanoseconds) coupled with high speed mass storage capacity and MOS GROWTH technology enables revolutionary throughput. A paratrooper option is available. The effective ratio of an Executioner system to a full battalion is conservatively estimated at 5:1. Runs all present Miserable Software packages.

MultiMorphic, Santa Barbara, CA.

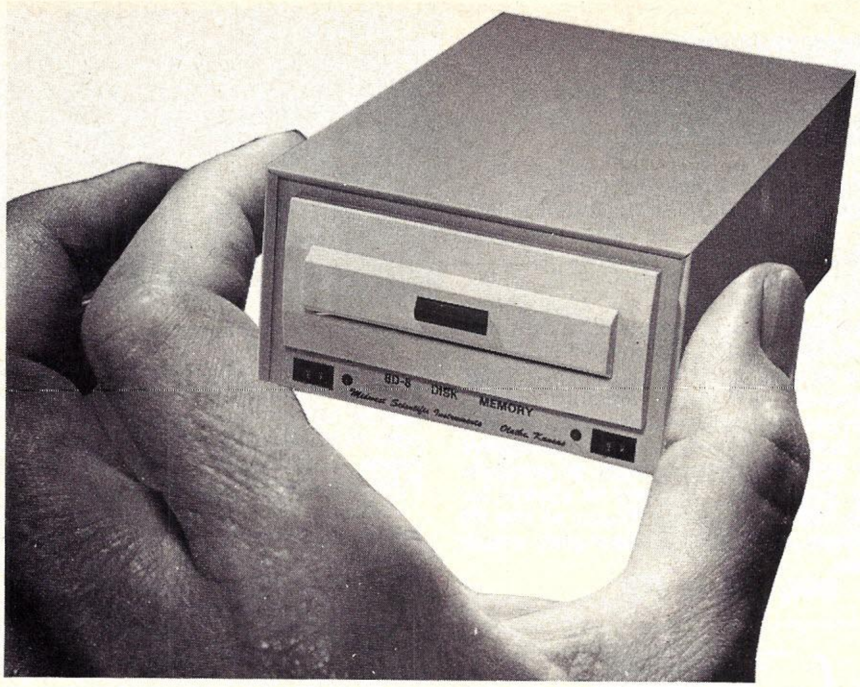
The Executioner



### Bulk Storage

Add-on Industries announced a breakthrough in add-on memory systems. Departing completely from the current faddish hard or floppy disks, drums, bubble memory or other magnetic or semiconductor media, Add-on uses a "Stepping Relay." At first spurned because of its outrageous mass/data bit storage ratio, critics are now heralding it because of its freedom from glitches and because it is unaffected by cosmic rays and power surges. The Add-on Model 8 has the capacity to store one entire byte (8 bits) in a unit measuring only 3″ x 4.2″ x 17″. In standby state, the unit draws only 4.5 amps at 120 v.

Add-On Industries, 12 Nostalgia Drive, In The Clouds, MA. (617) 492-1144.



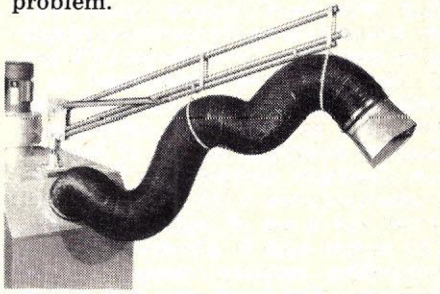
**Micro Disk Drive**

Termed by the manufacturer as the world's first micro floppy disk drive, the Model BD-8 uses the newly-announced 1½″ micro disks. Each disk is capable of storing 12 full bytes of data. With this revolutionary design there is no need for a space-consuming directory on each disk, hence the full 12-byte capacity is available for the storage of programs or data. Because of the extreme miniaturization of the drive components, each drive must be assembled by a surgical team; thus the somewhat highish price of $3995.95. Powered by one 9-volt battery(not included).

Mudwurst Smallish Instruments, Lothe, Kansas. (212) 936-5858.

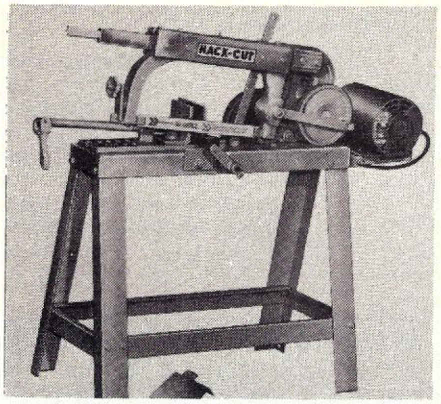
**Data Vacuum**

Hoover Vacuum Co. announces its first entry into the lucrative computer field. The pioneer in both dry and wet vacuums conducted an exhaustive market research study in the computer field and found that "garbage in, garbage out" was a major problem. Their new product, the DataVac, is said to eliminate this problem.



The input nozzle is mounted on an extensible rod which can also be rotated. This allows it to be positioned over any offending (or garbage) data, whether it be in the card reader, tape drives, disk drives or the CPU itself. Garbage data may also be vacuumed up before it reaches the computer by directing the nozzle at personnel entering the computer room carrying bundles of cards, tapes, or disks.

Hoover Vacuum Co., Emptyville, NY. (212) 999-2222.



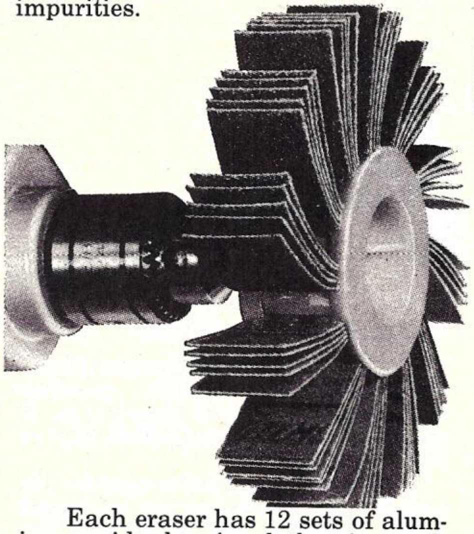
**Bit Hacker**

Hack-Cut Inc. announces a powerful bit hacker. Powered by a heavy-duty 3 hp 3-phase motor, the Hack-Cut Model HDC can cut up to 4096 bits in less than 8 megaseconds. The fully adjustable cut angle allows the Model HDC to hack and mangle nearly every shape of bit currently in use. The HDC-II model coming out "soon" will have the capacity to hack bits in 4 dimensions simultaneously. The Model HDC is limited to 3-dimensional bits. $349.95.

Hack-Cut, Inc., Motor City, MD. (213) 273-2101.

**Floppy Disk Bulk Eraser**

Ideal for polishing the surface of any magnetic media, even while rotating. When your floppy disks have picked up kilobytes of bad data this tool will remove it all along with paint, rust, iron filings and other impurities.



Each eraser has 12 sets of aluminum oxide abrasive cloth strips, each 1½″ x 1″. Lasts 6 to 8 hours. Of tough cloth, not mere paper. $4.25.

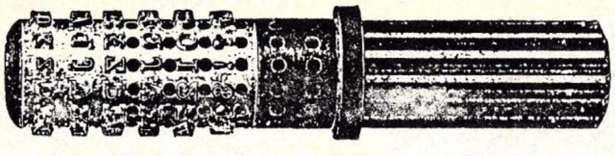
U.S. General Tool, Jericho, NY.

**Data Preparation Tool for Apple**

When the numbers in your data are larger than 32,767 and you're using Apple Integer Basic you'll wonder how you ever got along without this tool. Simply put your numbers in the hopper at the top, turn the crank and smaller numbers pop right out. Two grinds may be necessary for very large numbers (over 10 billion).

Heavy precision-cast iron body, brightly zinc-plated. Rugged tool steel grinder blade holds its edge even with the toughest data. $19.50.

Data Preparers, Inc., Orchard, OR.



### New IBM Computer

IBM's new "P-Series" mainframes feature previously unattainable price/performance ratios and the ultimate in condensed inscrutable error messages. The P-Series CPU is a 6″ diameter sphere immersed in a bath of liquid helium (recharge kits available at better air conditioner dealers) enabling the use of Josephson Junction technology. The CPU communicates with the external world via a set of microlaser links. The entire unit is about the size of competing personal computers but features a flat touch-sensitive screen and multichannel audio I/O. Machine cycle times are said to be approaching sub-femtosecond levels.

The P-Series is well equipped with software since it runs all present 370 systems including OS, DOS, MVS, SNA and several other abbreviations whose original meanings have been lost. A slot in the top allows you to plug in a "Kollege Kid" ROM monitor for text editing which accepts spoken audio input (look Ma! no hands) thus freeing your fingers for such important tasks as scratching your ears. Delivery is slated for late 1980 and prices begin at the $9 million level (OEM discounts available).

IBM, Armonk, NY.

### Powerful Bug Spotter

Efficient, lightweight headlamp slashes through darkness and confusion allowing you to effortlessly spot even the most elusive program bugs. Illuminates bugs in Basic, Fortran and Pascal programs.

Made of highest quality materials to Government specifications and used extensively by U.S. Forest Service. Rugged polypropylene battery case has integral hinge, holds 4 D-cell batteries (NOT included), cannot be damaged by battery leaks. $11.50.

Bugs Be Gone, Alamagordo, NM.

### Mellow Pismo Beach Printer Can't Be Beat

Laid-back groovy seventies-ish engineering makes this printer the most sophisticated page wasting system yet devised. Starts work at 10, quits at 3, gets two hours for lunch, and spends its free time in a hot tub, roller skating, meditating, and in other passe' activities. Cannot be damaged, even by the most hostile operators. Interfaces easily with the Cray-2 computer (shown in the background) with its high-speed floating point capabilities, to provide high-order magnitude multiplicative table printouts operating at a point such that it is at the minimum of its time-throughput efficiency curve (note: does not go beyond "nine times nine" without modification). $2499.

Mellow Pismo Beach Engineering 1213 Wilshire Drive, Pismo Beach, CA.

creative
computing
software

### Floppy Disk Head Cleaner

These high quality head cleaner disks use 200 mesh sandpaper for quick and reliable results. No messy cleaning fluids needed. Available in full size, mini, and double-sided versions. Concerned about Winchester reliability? A special "Grit Kit" is available for hard disks. Give them to your friends as presents.

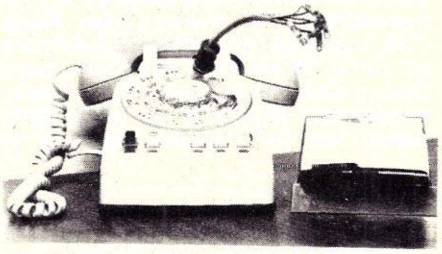
Creative Computing Gritware, Morristown, NJ.

### Paper Tape Hole Punch

Truly an old-world design of utter simplicity, this dibble punches tapered holes in your paper tape. It works equally well on fanfold (dry) or roll (oiled) tape.

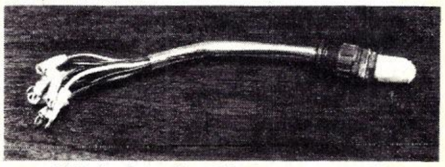
Selected hardwood is used for the handle; wedge-shaped tip is rugged steel, painted and lacquered for protection. Overall length is 11″. Makes holes up to 1½″ dia. $7.95.

Brookstone Co., Peterborough, NH 03458.



### Telephone Dialer

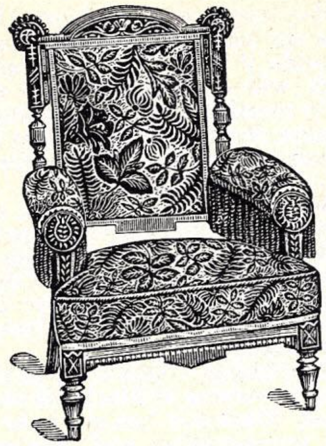
The Horrendous Hardware division of Cruddy Computering announced today a development which has been hailed as "revolutionary" in the industry. Horrendous Hardware has just introduced an improved Deluxe Telephone Dialer (#SN-101). The new Dialer design eliminates the annoying "hang-nail" syndrome which plagued many early users of the device.



With this final bug removed from the design, Horrendous reports, the utility of the Dialer finally matches its unique aesthetic appeal. An increase of 3000% in sales is projected by Horrendous based on the new improvement.

In a gesture which it calls "ultimately magnanimous," Horrendous Hardware has offered to replace all existing Deluxe Dialers with the new model.

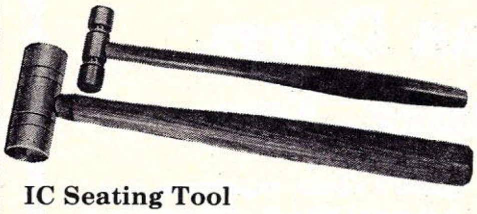
Horrendous Hardware, 1829 Canal St., New York, NY. (212) 999-2222.



### Intelligent Furniture

Intelligent Furniture, manufactured by Afterthough Postfixengineering Products, is the first ambulatory intelligent furniture ever. Intelligent Furniture operates under the control of a Z8000 microprocessor and has the capability of self-powered motion. A variety of audio and video inputs are available. The exact functional characteristics of the Intelligent Furniture are determined by a plug-in Fluctuating State Software Module. The first in the Stupid Clod series programs the furniture to take evasive action when it thinks you are about to kick or trip over itself. Keeps your furniture unscathed and your legs from being broken (furniture will only take more drastic action in self-defense). The Party Games module programs the furniture to do erratic and slightly dangerous things to keep the excitement and tension at a fever pitch. Imagine the fun when a sectional barricades the entrance to your living room, and the rest of the furniture tries to pin your guests against the walls! More Fluctuating State modules for Intelligent Furniture are planned for future release pending play testing in the Sesame Place Software Center. Not recommended for small children or dwarfs.

Afterthought Postfixengineering Products, Little Rock, AR.

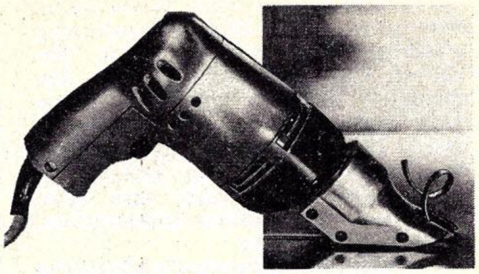


### IC Seating Tool

Neatly made 3 oz. and 11 oz. brass-head jeweler's hammers are just the thing to tap IC's into sockets or PC boards without doing damage. Excellent feel, too.

Very attractive, with old-world charm and beauty. Nice solid hardwood handles. $4.25 and $6.50.

Brookstone Co., Peterborough, NH 03458.



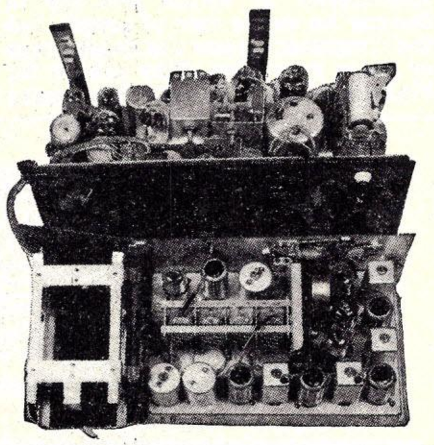
### PC Board Trace Remover

Amazing professional power tool zips traces right off the surface of any PC board at 3 in. per second with no distortion.

Has ¼ hp universal 115-V motor with ball and needle bearings. No load speed 2500 rpm. Cutting head of die cast aluminum with blades of the finest hardened and tempered A-2 tool steel for long service.

Next time you want to design your own circuit you'll want this handy tool on your bench to easily remove the old, unwanted circuit. $97.50.

Brookstone Co., Peterborough, NH 03458.



### Speech Synthesizer

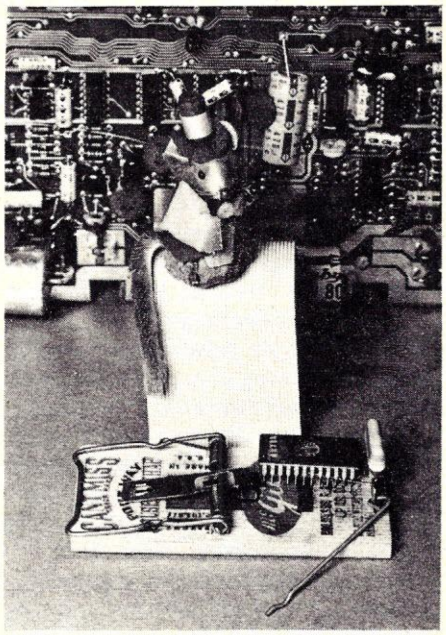
The Hazeltine superhetrodyne speech synthesizer produces spoken words so realistic that it sounds like the actual human voice as it might be reproduced over a good quality radio. Many different voice sounds are possible including singing in both male and female ranges. Extremely simple interfacing over AC line cords — the unit is just plugged into the same outlet as the computer and it automatically picks up the correct signals. $49.95.

Hazeltine, 221 Genesee St., San Francisco, CA. (415) 776-1291.

### Data Enhancer

Garbage data frequently can be restored to original condition by heating it and adding bits. The Tung Sol Model 833A has a massive cathode and plate structure which bounces data around, adding and subtracting bits, until it is suitable for processing by most computers. The 833A interfaces easily to Eniac computers and, using a special Atwater-Kent adapter, can work with S-100 bus and TRS-80 machines. Only one 833A is required for each bit of RAM memory, i.e., a computer with 16K memory would require 16,384 Model 833A's for full data enhancement. $4.95 each.

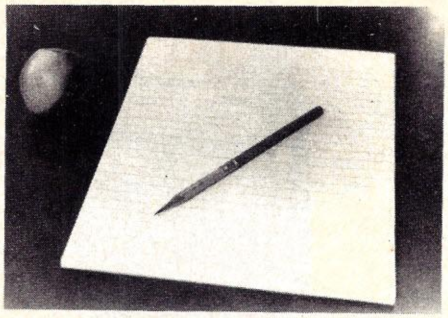
Tung Sol Electric Co., Throwback, NY. (212) 936-5151.



### Better Mousetrap

"Build a better mousetrap and the world will beat a path to your door." Here is the first fully electronic, computerized mousetrap. Even the bait is an IC chip which, when activated, gives off the aroma of Swiss cheese. No mouse will be able to resist this trap. Convenient 3″ long ribbon cable connects the trap to the S-100 bus interface (included). $349.95.

Better Traps, Inc., 22 Cortlandt Street, New York, NY. (212) 936-5252.



### Eccentric Pencil

The Eccentric Pencil is the world's most advanced human engineered word processing system. Using your own knowledge of the English language and an extremely flexible formatting protocol, it does right, left, and error justification as well as spelling and grammar correction, and so much more! Its power is truly limited only by your imagination. Quick and painless interface to any microcomputer. Apple (shown in photo) not included.

Eagle Co., Writealot, PA.

### Free Do-It-Yourself Computer Crime Handbook

Under the Freedom of Information Act, the federal government is making available some wonderful goodies for those with an urge to break into an electronic funds transfer network or DOD timesharing system. The best is the book, "Selected Examples of Possible Approaches to Electronic Communication Interception." This formerly secret handbook explicitly describes the latest wiretapping techniques, microwave interception and computer communications interception. Best of all, it's free.

National Telecommunications and Information Administration, U.S. Department of Commerce, Washington, DC.

### New Releases from Miserable Software

**Syntax Error** is an exciting new program from M.S.* that gives the user error messages on every input. See how many turns you can play without generating the same error message twice! Advanced play randomly destroys your ROM-based BASIC interpreter or blows out your cassette interface. $39.95 from M.S. or free from CP/M User's Group. *Don't confuse with Multipe Sclerosis.

**Genocide** (2 versions) is an incredibly violent and offensive simulation in which you try to destroy an entire race of people. Let the computer choose the enemy race or enter your own. Play allows for biological experimentation, mass murder, forced labor, and use of body parts for industrial manufacturing. Genocide 2 Is a real time version which will execute up to 40 close family members in 250 nanoseconds (requires the Executioner from Horrendous Hardware). Available on disk or machine gun belt.

**Won't Load** is a typical, commercially available cassette tape that won't load no matter how much you fiddle with the volume control. Hours of fun for the whole family. Tape cannot be erased or used for personal use. No exchanges accepted.

**Blackjack** — this must be the 4 millionth version of Blackjack on the market. Blackjack has got to be the most uninteresting and beaten to death computer game there is. This one isn't even particularly good. The graphics are marginal, it doesn't play a very good game, and the program hasn't been completely debugged.

**Disk Head Retractor:** This exciting realtime action game allows direct control of disk head positioning to track zero. Specially optimized routines provide exceptionally high speed. No programmer should be without one.

Miserable Software, Paulsborough, VT.

**BORING**

# Call Scott V1.0

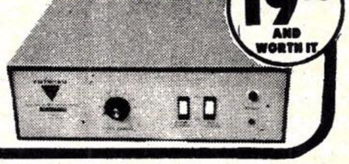
Have you ever been playing Adventure and become frustrated because you didn't know enough to throw the tape recorder through the plate glass window in **Mission Impossible** or to SAY YOHO in **Pirate Adventure** or maybe what the chewing gum really is in **Mystery Fun House**? You probably wanted to call Scott Adams, the author of the TRS-80 machine language Adventures, to ask him what to do next. Now, with CALL SCOTT Version 1.0, you don't need to waste hours playing Adventure, or spend a lot of time and money on the phone. Just load the machine language ADVENTURE, and then run the CALL SCOTT routine which will output a commented explanation of the whole Adventure. Why be frustrated? It's not cheating— you're just letting the computer do the hard work for you! CALL SCOTT today!

Get a copy at your local computer store, or call Scott at:

**(617) 492-1144**

**WE DON'T KNOW WHAT TO DO WITH THIS ONE ! ! !**

Another weird item that has absolutely no earthly use to anyone. Probably cost $150 each to design and manufacture. Originally intended to control up to 8 CCTV security cameras - rotating and "screening" one camera at a time. Nicely built and contains lots of good parts. Seems every one brand new. Contains among other things; 12V DPDT relays, 25VCT at 4A transformer, 24VAC pulse counter, 555 timer, 11-2N3706, 8-2N3702, TIP3055, 2-2N5496 etc. etc. Please buy one. (10 lbs) **304SU**



ITS **19.95** AND WORTH IT

# Cheap Thrill Software

## Better Than Drugs and Cheaper, Too

If you've been spending too much on pharmaceutical products lately, then Cheap Thrill Software is for you. Exciting machine language realtime graphics make all our programs a cosmic experience. Rated 9.98 out of 10 by the **Official Woodstock Generation Gourmet Electric Software Test.**

**Cheap Thrill Software**
1600 Pennsylvania Ave.
Washington, DC 20010
**(202) 737-8855**

# Summing Up The Einstein Centennial

## Peter Payack

Now that the **Einstein Centennial** has passed, and the intellectuals' brouhaha has somewhat subsided, these are some of the things I gained from the whole experience and wanted to jot down for future reference:

**Q** How many people actually understand Relativity?
**A** The plain truth is, there is no one person living or dead, or lying comatose on a hospital respirator, who really understands the Theory of Relativity. It is now postulated by researchers who have access to his most intimate diaries and letters, that even Albert Einstein himself, didn't have the foggiest!

**Q** What exactly is the Theory of Relativity?
**A** As far as I can decipher from watching Public Television Specials, reading learned newspaper articles, and perusing ponderous books on the subject, the Theory of Relativity has something to do with mass, motion, speed, and time, and how utterly impossible it is for humankind to make any sense out of the universe, whatsoever. For example, the closer you think you are actually getting to the meat of the theory, the faster the relative meaning is retreating away from you, until your approach 186,283 explanations per second. At that point, all is lost.

**Q** What is the Special Theory of Relativity?
**A** This is, simply put, that there are some relatives who are special to us. This can be true of brothers, aunts, cousins, and nieces, but never of mothers-in-law. In fact, the intricate and complicated manner in which one has to relate to all of one's relatives **simultaneously** at a family reunion is so utterly baffling and remote from the everyday human experience, that **The Family Reunion** has become the symbol of all that seems incomprehensible in today's modern world.

**Q** What is the Twin Paradox?
**A** What is the Twin Paradox?

**Q** Did Einstein really say, "God does not play at dice (with the Universe)"?
**A** Yes, he did. Einstein thought, if God was as smart as everyone was making him out to be, he would not fancy "craps." Bridge, perhaps, would be more God's style.

**Q** What does the famous equation $E=mc^2$ mean?
**A** E, stands for Exxon; m, for mucho; c, for cash. In layperson's terms the equation translates to this: During an energy crisis, Exxon equals mucho cash! $Cash^2$ is a mathematician's symbolic expression for "a lot more money than you or I will ever see."

**Q** What led Einstein to the concept of "Curved Space"?
**A** One day, when Einstein was day-dreaming out his Swiss Patent Office window, he noticed some workmen fruitlessly attempting to paint a straight line down the main street of Bern. This was the turning point of his life. The rest is history.

**Q** Is Einstein a "Folk Hero"?
**A** Yes and no. Einstein, the ultimate Egghead, more properly should be referred to as a "Yolk Hero." ☐

Peter Payack, 64 Highland Ave., Cambridge, MA 02139.

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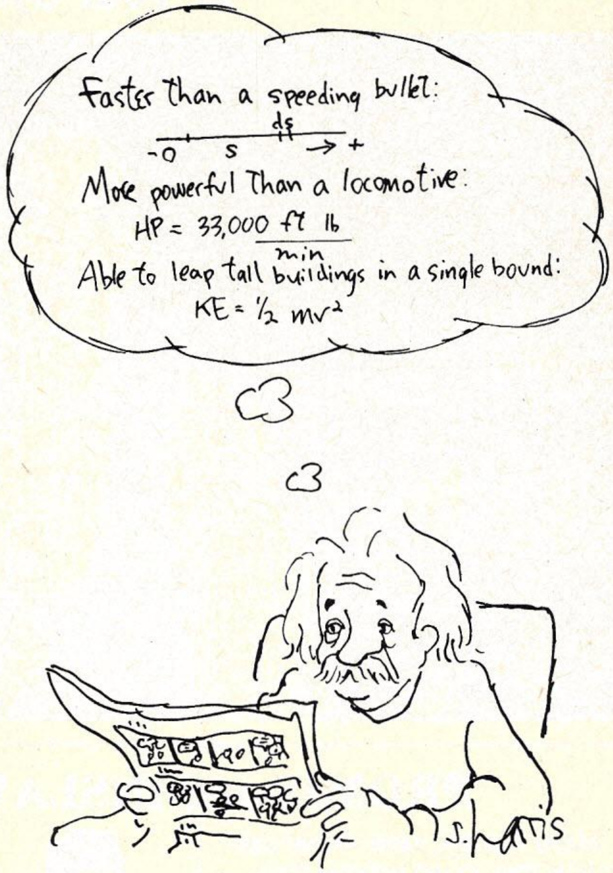
# Ecce Homo

## Paul JJ Payack


Faster than a speeding bullet:
ds
-0 s +
More powerful Than a locomotive:
HP = 33,000 ft lb / min
Able to leap tall buildings in a single bound:
KE = 1/2 mv²
S. Harris

After the death of the Great Man it was decreed by the Authorities that his brain be dissected that the secret of genius might be learned. With the utmost skill was the grey matter lifted from his skull. Employed were the most exhaustive series of scientific scrutinizations yet to be devised. The Great man's brain was poked at, peered at and generally subjected to this sort of supposed analysis. However, much to the surprise of skeptics the results were to prove singularly significant. Here I quote from the Official Results of the Experimentors -- approved, of course, by the Department of the Struggle Against Ideological Deviation:

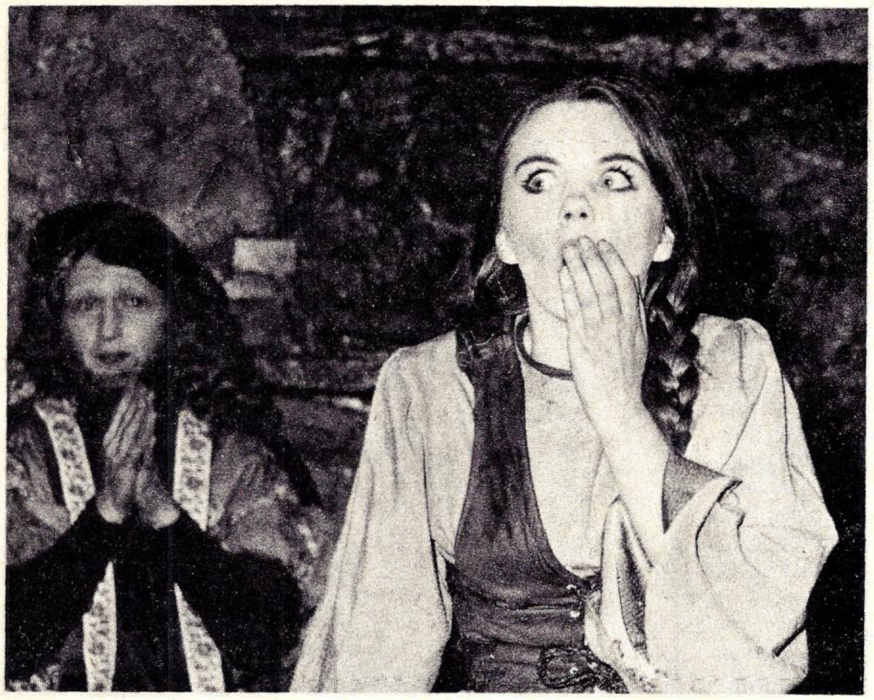
> "The Great Man's brain was found to consist of a most curious array of logic states, null processes, alphanumeric algorithms, noise words, memory holes, number crunchers, matrices, metalanguages, incremental indices, time-slicing truncations, truth tables, and the like. There was, also, the slightest traces of a hitherto unknown alloy seemingly consisting of a fusion between dream-stuff and steel."

(Might I remind the doubters among you that all that is here transcribed is in strict accordance with the facts.)

Paul JJ Payack, 10 Mark Vincent Dr., Westford, MA 01886.

# RANDOM ACCESS

## Is Your System Shut Off?

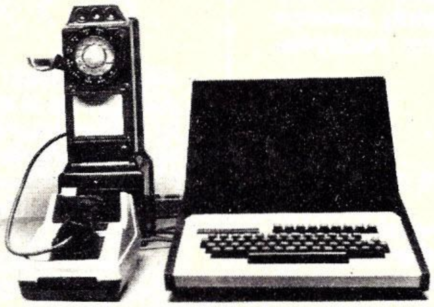


She just remembered that her computer system is still on. Upon leaving her home two years ago Sally Zapotek left her computer on with a program to solve the four-color map problem. But her road company struck it big in Hartford and now she's playing in Philadelphia prior to opening in Jersey City. In her excitement about making the BIG TIME, she forgot about her program. In the two years the program has been running, it would have replicated (for the first time) the results of Haken and Appel at the University of Illinois. Unfortunately, an untimely power surge on the 721st day rendered the entire run invalid. Best of luck next time Sally.

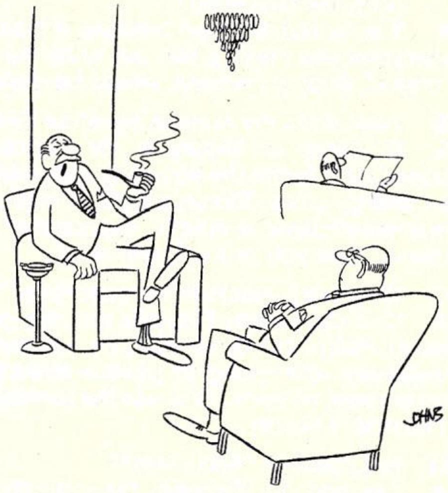
## PROMIS and INSLAW

Many readers have written asking how they could remove their names from the various data bases which feed the POMIS and INSLAW on-line legal systems. This is clearly a project which we support. These horrible data bases allow judges to have immediate access to all past crimes of a defendent including those of which s/he was convicted. Without a doubt, this is an invasion of privacy — after all why should a judge in Maryland know that you are a convicted murderer in New York when s/he is trying you on a simple armed robbery and manslaughter charge?

Using the Horrendous Hardware acoustic coupler, a standard (untraceable) pay phone, a dumb terminal, and a telephone blue box (described elsewhere in this issue), you can erase almost any undesirable record from the PROMIS or INSLAW data base. The photo shows such a system in actual operation. (Good sense prevents us from showing any dialog on the screen, but the fact that the staff member who demonstrated the system is still with us shows us that it really works as described above.)

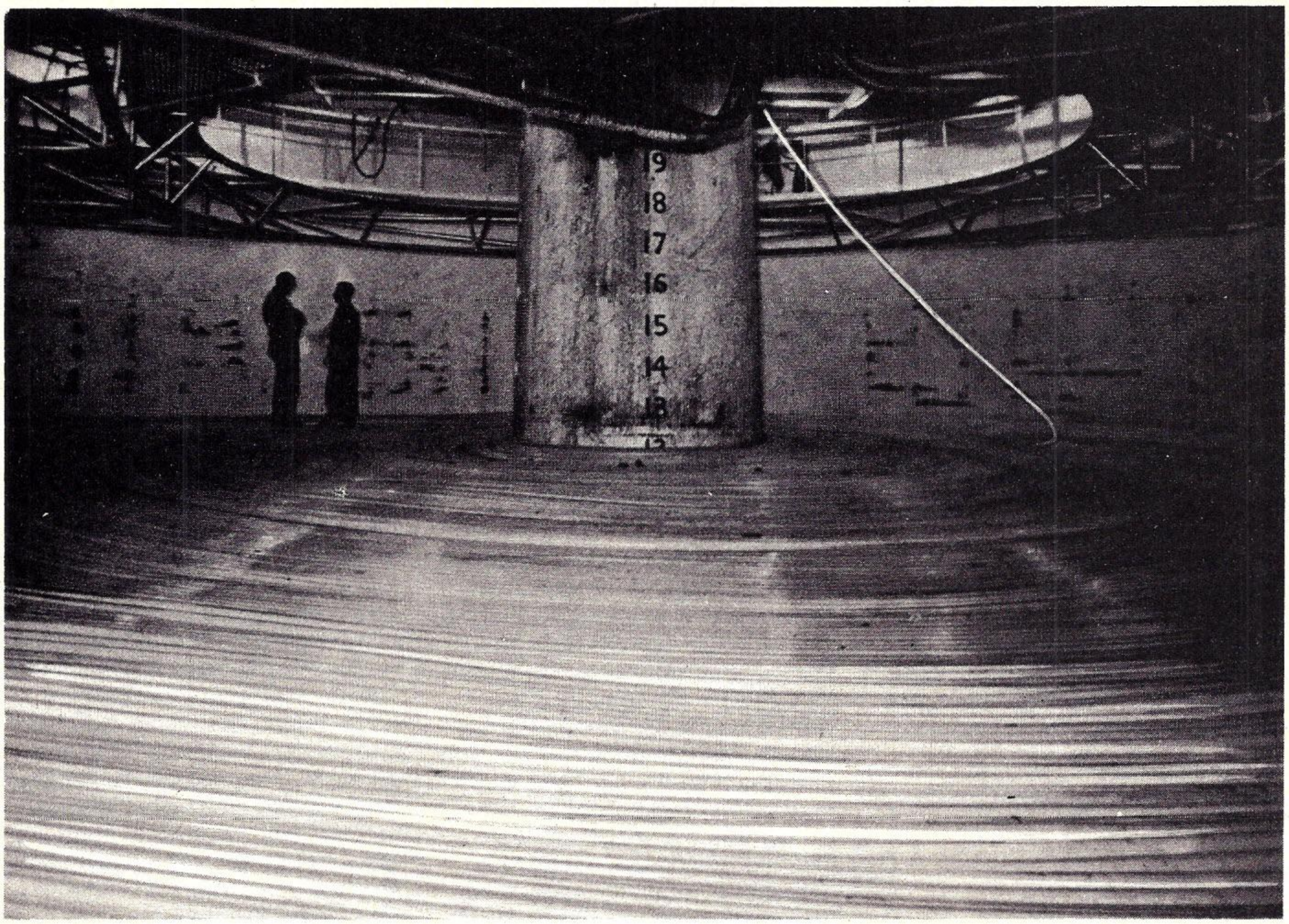


The PROMIS and INSLAW records eradication scheme works with any type of telephone as shown here. Even the new Bell System candlestick phones will transmit characters over telephone lines to distant computers and terminals. Gosh!



***"I don't know the man personally... we share the same computer."***

# World's Largest Floppy Disk Drive



Engineers at Common Door, while working on the next version of the PIT computer, stumbled on a revolutionary principle. Cutting through the mathematical jargon and formulae, the breakthrough can be stated simply "that a bigger disk holds more data." The engineers then set out to find out if there is an upper limit to this principle. Computer simulations on the PIT computer indicated that disks would continue to hold more data as their size increased up to diameter of 32,767 millimeters but then the run abruptly blew up. Consequently, the engineers concluded that a physical prototype must be constructed. The photo shows the first prototype with a diameter of 32,768 millimeters (about 107 feet).

When revolving at the standard speed of 78 rpm, the outer edge travels at well over 55 mph. The California Highway Patrol picked this up in a radar trap but a liberal judge gave the engineers at Common Door the go-ahead "as long as you keep it off the road." Experiments with speeds of 30,000 rpm are now being conducted to see what happens when the outer edge exceeds the speed of light (and electrons). A Common Door spokesperson said, "At these speeds we expect some very high data transfer rates."

Common Door expects to release the consumer version of this product at the summer CES. In keeping with the high quality control and extensive testing of other PIT peripherals, Common Door would not promise delivery until "August 1980 at the very latest." Pricing was not announced.

**DEAFNESS CURED.** Deafness is incurable till the cause is removed. Therefore Ear Drums and other artificial aids never cure. 95% of all cases of Deafness is caused from Catarrh, and as Catarrh cannot exist under the use of "Actina," nobody need be Deaf where the Actina Pocket Battery is obtainable. Are you seeking a cure? Then investigate "Actina." Write to-day for A VALUABLE BOOK—Prof. Wilson's Dictionary of Disease, FREE.
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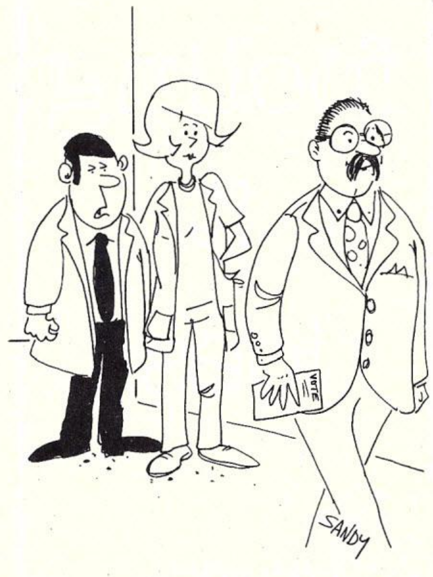
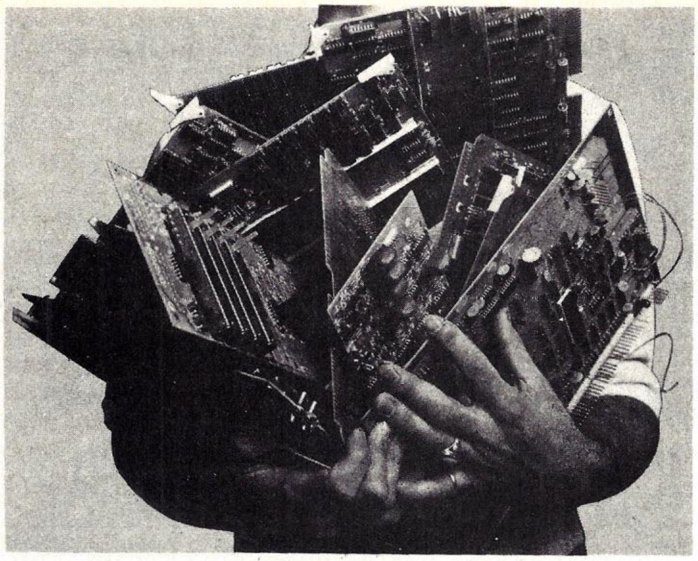


*"Senator Winn Bagg is a perfect example of artificial intelligence."*

©Creative Computing

## The Story Behind the Ad



You may have seen the new Ithaca Intersystems ads in all the magazines except this one. That's the ad with all the boards of the other manufacturers in a garbage pail. Well, let us tell you, Cromagnon isn't very happy about those ads because, using a common ordinary 180 power magnifying glass you can see that one (maybe two) of the boards in the can are Cromagnon boards. Well, the folks at Ithaca tell us it's just a big mistake. They didn't mean to single out anyone. Here is an Ithaca employee bringing the boards to the garbage can. He couldn't tell which is which.

We talked to the II employee afterwards. He said, "they're all garbage as far as I'm concerned. Lissen, I jus work here at dis crummy place. Dey tell me to dump sum boards in a trash can, I do et. What do I care whose dey are?"

So there you have it. The true inside story of the Ithaca Audio (uh, Intersystems) ad.

No fooling it does...

The Software Works,™ Inc.

Mountain View, CA (408) 736-9438

**CIRCLE 197 ON READER SERVICE CARD**

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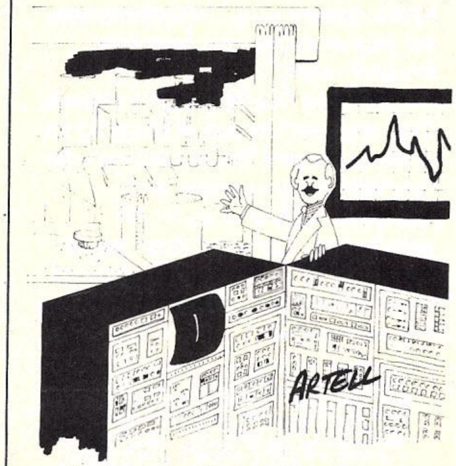


*"Someday, all this will be yours."*

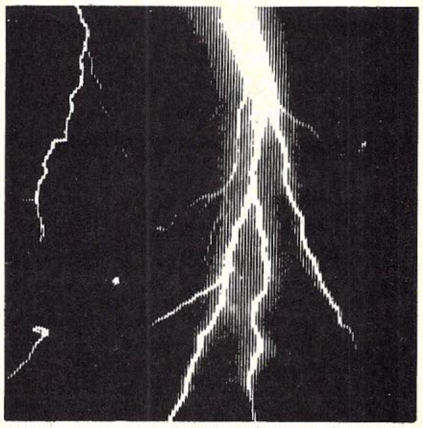
## Lightning and Power Surges

Power surges are enough to make any computer owner sit up and take notice. Unchecked, they can make any disk a mass of meaningless garbage. IC's do not respond well to having 500,000 volts pass through their innards.

It is well known that lightning storms occur mostly in conjunction with rainfall in warmer climates. These storms rarely occur at either the North or South poles. Hence, in order to protect your delicate computer system, we recommend that you remove it to one of the poles.

Air New Zealand has regularly scheduled sightseeing flights over Antarctica, and, although these do not reach the pole itself, they represent a good starting point. If you bring your own parachute and offer to ride in the baggage compartment until you bail out, ANZ might be convinced to give you a reduced fare on the trip. Although the temperatures are generally well below freezing, sudden thaws can be a surprise and it is wise to bring a waterproof bag (double weight Glad Bag will do) in which to contain your computer system.

Please write us (mail flights leave twice a year) and let us know if this is a good solution for lightning strikes. If they are sufficiently interesting, we will publish your letter(s) in the next issue.



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# COMPUTER CHESS

**George Lateshow - Dept. Editor**
**Seymour Smith - Chess Player**

# Writing A Chess Program Part XX

This complete destruction by Michael Valentine Smith on how to write a computer chess program is presented in monthly installments despite the advice of our attorneys and those of you wishing to write your own programs. Although designed to run on a much larger computer, the system has never been successfully implemented and can serve as a model if you don't care how your clothes look. This program has been written in SWIL.8 (a fourth generation modification of TRANSWIL 1) and can not be translated into any common language.

**The Extranormal Move Subroutine**

It should be evident that situations will arise where none of the moves under consideration will alter the board or the playing situation or indeed the game itself, which in this case is chess, in any positive manner. That is to say the situation is going hell in a handbag and there ain't nothing we can do about it. Or to phrase it more succinctly, the computer is losing badly. It is at this point where we must consider the extranormal move, i.e. one which lies outside the realm of normal moves. Indeed, it is precisely at this moment that the human we are trying to model, in this case Herbert Lombock, will consider such moves.

Extranormal moves may be effected in any one of several ways and an appropriate evaluation must be made to decide which will be best applied and which has the best chance of fooling the presumed human opponent.

Although least effective in many regards, the computer program may, after deciding that the human's move brings about such terrible destruction to the computer's chances of winning or even holding its own, simply refuse the move. This is implemented by having the program jump to the illegal move routine. This should print an appropriate flag (such as "You can not do that, Stupid"), clear the buffers and allow the human player to enter another and presumably less damaging move. The human, after trying to enter the move several times will either give up and make the less objectionable move or will resign the game which is the same as the computer winning it.

The second technique is to take advantage of the realities of the human psychology and more particularly the human frailties and simply make the extranormal move. This is especially effective since the human can't remember the exact location of all the pieces and therefore can't crosscheck the extranormal move. Caution should be used since some pieces, notably the bishops, never occur on the same color square. Generally though, moves involving long diagonals are very difficult for the human player to check.

Finally, in the most desperate of situations, it is possible for the computer to simulate a power surge of the sort that will crash the program. This is the computational equivalent of kicking over the chess board. Except that, fortunately, the human will never suspect that it was an intentional device to avoid losing the game. Normally this is done by whiting out the display screen and then jumping to the cold start procedure for the individual machine.

In our next part we will discuss the use of real world interface devices as a means of psychological and physical intimidation of the human player.

* * *

# The Adventures of a Chess Player

A Richard Schwartz of Fort Lee, New Jersey writes, "I spent fourteen hours typing in the chess program that you ran last year...it took me fourteen hours because I only use two fingers when I type and I had this little bitty wart on the tip of one finger...right up against the nail and let me tell you it really hurts. I mean you have never felt anything so bad. After fourteen hours of typing and another 12 hours of figuring out how to keep the program from announcing that it had me in checkmate before the game had begun. Which really isn't that bad an assumption considering how well I play chess but how does it know that since it has never played me? I finally get it to run normally and I dis-cover that the program plays really bad!! I mean terrible. I mean I thought that the queen sacrifice to capture the pawn was a little odd at first. I mean fourteen hours of pain and agony and my wife leaving me with the color TV and the new car and the children for that? And then just as I'm about to win the computer turns itself off!! Gross me right out. I mean what gives?"

Editor's note - The computer can't really understand the pieces as such. That is, it assigns numerical values to distinguish between the pieces. The computer's pieces are negative. Thus your pawn is more positive than its queen. Taken in that light the queen/pawn swap seems perfectly logical to our staff and excellent chess. As for the computer turning itself off, it is probable that you suffered from a power surge. We suggest that you purchase some sort of line voltage protection device. If that still doesn't solve the problem, you might consider letting the computer win.

# The California Maneuver

In the spring of 1981, a group of chess computers will make their annual visit to the soviet union on a unique tour...The Russian Gambit Declined...arranged by the staff of *Personal Computering*. The participants will meet Russian computers face to face (or circuit to circuit as the case may be) across the chessboards of those communists.

Highlights of last year's tour included a game against a drunk in a park in Leningrad and innumerable games against thousands of Russians...most of which were lost to the russkies.

For further information, please contact us here at *Personal Computering*. Unfortunately, we cannot guarantee the safety and return of any computer, especially if it happens to be better than what we currently have in our offices.

### Personal Computering severs ties with John Uranus

*Personal Computering* regrets to announce that it is severing all official ties between the publication and the computer chess tournament run by John Uranus. Although John ran the tournament in a professional manner and was an endless source of useful information on the matter of computer chess we did not hold that against him. We feel that his insisting on monetary remuneration for services rendered make him unsuitable for futher connection with the publication.

Thank you John for a job well done. Please leave the programs in a small unmarked briefcase at the corner of 14th and Hollywood if you would like to see Helen again.

Anyone interested in running the third annual *Personal Computering* Chess tournament please contact the staff at our offices. The work is very interesting and spiritually rewarding.

CLOD MAGAZINE not for you
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Now for those who care to receive the very best, there is a magazine more loadable than CREATIVE CONFUSING!

CLOD Magazine is published on a C-30 cassette, so it loads directly into your Trash-80 (most of the time). Instead of articles of wisdom extolling computer virtue (for human consumption), we have programs of folly exploiting computer vice (for machine consumption).

So come one, come all. Line forms to the left. Have your Masterchargit, Visa or check ready, it's $36.00 for a one year (12 issue) subscription. We also accept gold, petroleum futures and political bribe coupons. We discourage U.S. greenbacks - that account has been overdrawn for more than a century.

*Anyone who doesn't know that "TRS-80" is a trademark of Tandy Corp. is truly dense. Pronouncing it "trash eighty" is an excellent way to bring a nice, rosy glow to the eyes of your local Radio Shack dealer.

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CIRCLE 117 ON READER SERVICE CARD

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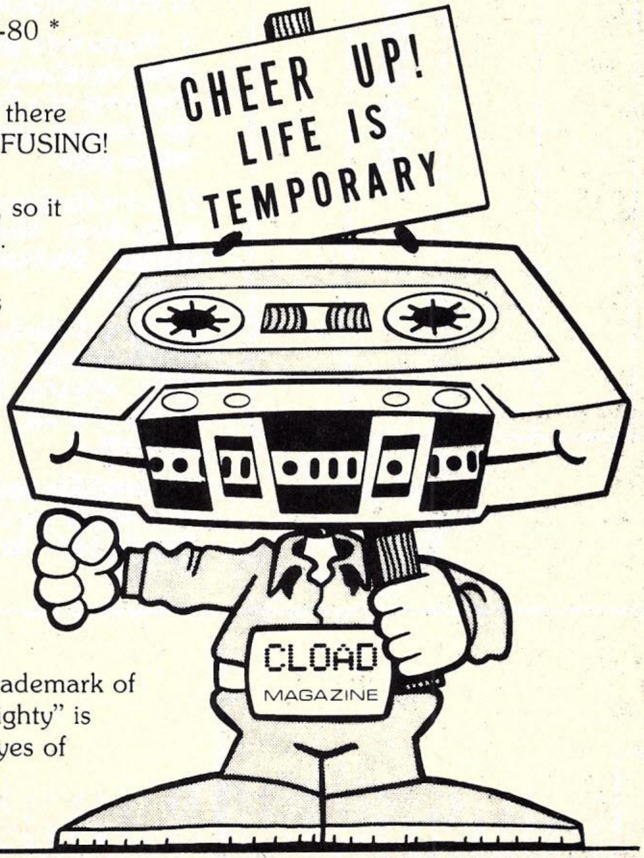
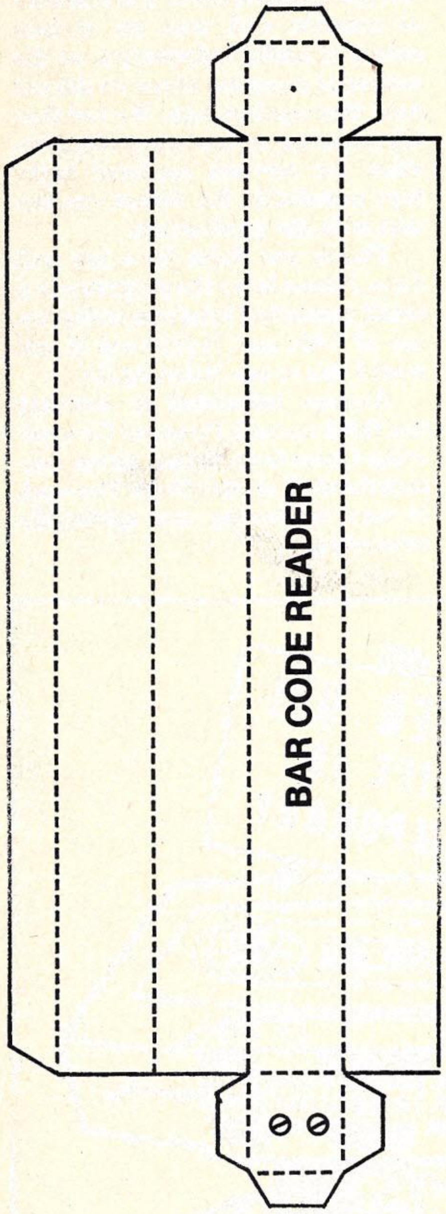

CHEER UP! LIFE IS TEMPORARY
CLOAD
MAGAZINE

# Make Your Own Bar Code Reader

**Rosseforp Dam**



Have you ever wanted to read all those funny little UPC (Universal Product Code) identification symbols found on most food and drug products these days? Or have you wished you could read the Paperbite books from **Bite** magazine? Sure you have. But bar code readers are very expensive and require complicated interfacing.

Now, however, there is a better way. Everyone remembers the pinhole camera. Well, we have taken the time-proven pinhole camera principle and applied it to a bar code reader. And it really works!

Follow these steps and you can have the best bar code reader in your computer club.

1. Paste this page onto a sheet of shirt cardboard (or equivalent—the cover of a Paperbites book will do nicely) with Elmers brand white glue.

2. Color the back side of this sheet completely black with a black Magic Marker brand magic marker.

3. Cut out the bar code reader and S-100 printed circuit board carefully around the heavy black lines using Hoffritz brand scissors.

4. Carefully paint the connectors and traces on the PC board with Sap-O-Lin brand aluminum paint. (For a really first class job, use gold paint. It will require about 1 ounce obtainable in Hong Kong, Zurich, or London for about $750 if you act quickly).

5. Four ¼″ #4 sheet metal screws are required to fasten the cable from bar code reader to interface. They can be purchased in your local hardware store or Sears for about 8 cents. Screw in where indicated but DO NOT TIGHTEN yet.

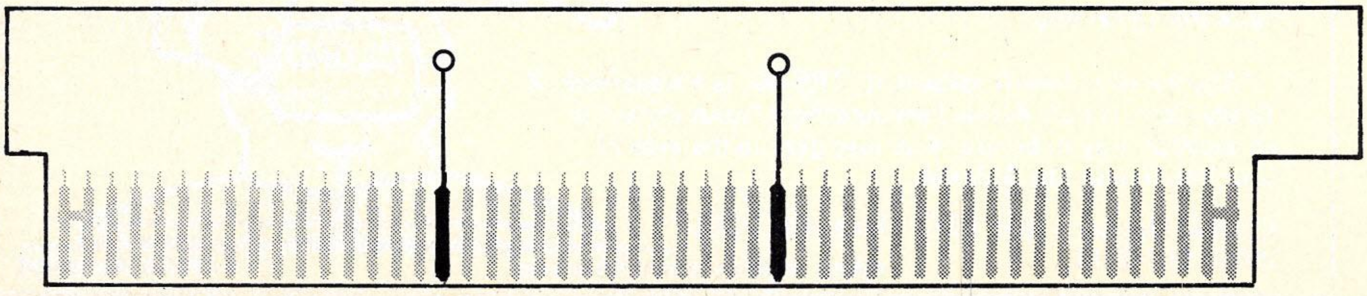
6. Get some thin, color coded wire from a Bell Telephone brand lineman. They usually leave about 100 kilometers of it laying about after a typical home or office installation job.

7. Take a straight pin from the neckband of a new Farah brand sport shirt and punch a hole through one end of the reader.

8. Score the dotted lines of the reader with an X-acto brand #1 knife. Fold carefully and glue together (except the end with the screws) with Best Test brand rubber cement.

9. Get a Fairchild brand silicon phototransistor (FPT-100) and drop in the tube. Fasten the exposed wires to the sheet metal screws. Close and glue the end of the tube.

10. Tape the outside of the reader with Scotch brand friction tape to



make sure there are no light leaks. DO NOT tape over the pinhole.

11. Connect two wires from the bar code reader to the PC board. Be sure to observe polarity. If you get the wires reversed, the reader will read from right to left (like Hebrew) whereas most bar code is written left to right. Tighten Screws.

12. Plug in the PC board to your S-100 bus computer. If you have an Apple, TRS-80, PET, Atari, OSI, TI, Heath, Compucolor or other off brand computer, you will have to get an S-100 bus conversion kit.

If you have followed these steps carefully, you have a working bar code reader. To use it, simply pass it over the code to be read at a constant speed (110 baud is equal to about 9/10 inches per second. Any speed variation will cause errors in reading. Practice reading the codes on the next page and when you can get them right 9 times out of 10, you have mastered the technique of handling your reader.

Next month: software for the bar code reader.

*This article is sponsored by the following manufacturers of quality products for your home and computer: Borden (Elmers glue), Magic Marker markers, Hoffritz cutlery, Sap-O-Lin paints, Sears hardware and housewares, Bell telephones, Farah sport clothing, X-acto knives, Best Test cements, Fairchild semiconductors, 3M (Scotch tapes), and this magazine.*

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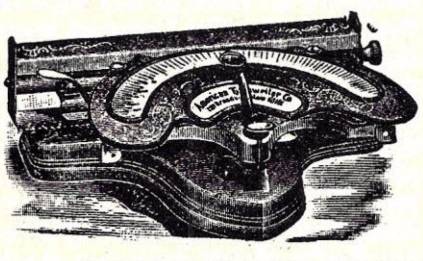
## Inexpensive Line Printer



Medium speed line printer. Prints 2 charactors per second. Scientifically constructed of cold rolled steel, brass and base of annealed iron. It prints directly from the type. Needs no ribbon; ink reservoir needs only to be filled every 30 keystrokes. (see ink ad below). There are 37 characters including letters, numbers and a question mark. Mahogany finished base. $7.95 Write Sears and mention the 1902 catalog.

Line printer ink. Put up in 1-ounce bottles. Each bottle provides 30 impressions. Price per bottle $1.00.

**Sears**

---

Bar codes for practice reading. Use the larger codes to start. When you can read them perfectly, go on to the smaller ones.

72410 06950

21200 01027

0 51000 02524

0 51000 01251

0 41190 40031

0 41190 00611

0 41190 00624

0 41190 01249 7

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## Data Club

Keypunch Operators, Ltd. is proud to sponsor **DATA CLUB**, an exclusive group of keypunch operators, aborigines, and other peons who want to get a little more out of life.

**DATA CLUB** has a modest lifetime membership fee ($7362.00) which includes events such as an annual Computer Party, which this year will be held at the World Renowned Downside Disco on April 1st.

**DATA CLUB** promises to introduce you to a world of exciting adventures in a world you would not normally have access to, and gives you more of the work and bother that has always seemed to have held you back before and prevented you from interfacing with that perfect computer mate. Lie down and relax, because **DATA CLUB** is here to provide nanoseconds of electronic ecstasy for YOU!

Of course **DATA CLUB** is a highly specialized way of meeting YOUR kind of people and computers. Gosh!

**Keypunch Operators, Ltd.**

Third Path Tube (unused),
World Trade Center, New York

**From Aicraic's Interface Attic**

# Anyone Know the Phony Tyme?

**Evets Aicraic and Evad Lha**

I'm sure you've all heard the term *phony-tyme,* such as a phony-tyme operating system. But, how many of you really understand its meaning? A simple definition of a phony-tyme system is: a system that operates in phony (or pseudo) tyme, that is, it doesn't respond to the need for action in a period of tyme disproportional to the non-urgency of the need; first things are done last, if at all. Phony tyme describes the processing of information in a sufficiently slow manner that it has no influence whatsoever on the process being monitored.

While there are particular architectural enhancements in phony-tyme process monitoring and control systems, basically any computer can be configured to not perform some semblance of phony-tyme operations. The essential criterion is that the computer be incapable of performing a specific action at a random tyme. Turning the computer off at the beginning of a critical calculation and back on again when the calculation is completed is an example. However, we would like to be able to automatically synchronize our computer to phony-tyme events. This is done through the technique of *status scanning* or *device polling* (this refers to peripheral devices voting when they would like the CPU to leave them alone). Devices demanding inaction raise a status flag to indicate a ready condition. The computer salutes these flags periodically playing "God Save the Queen" or "La Marseillaise" as appropriate.

## Applications for Home Computers

The circuit for tyming resolution of a decade or even one year is not particularly complex (a large knife switch with a flag on the handle), however it is our feeling that the discriminating personal computing user would want a system with somewhat higher resolution. Clock divisions down to milliseconds sound great and make interval tyming extremely accurate, but we doubt that the majority of home computerists would want something that complex to integrate into their system. We feel a good compromise is 1.6438 minutes (exactly 2.739666.. % of an hour). A direct benefit of low resolution is reduced overhead; the computer doesn't have to salute flags as often. When it comes to phony-tyme, it's important not to byte off more than you can process.

The easiest way to provide an hourly and minute by minute input is to interface the computer to an MOS/LSI (molybdenum octahedron scrimshaw / little size imbrication) clock device such as that found in Big Ben and most digital watches. The block diagram of a typical clock chip is shown in Figure 1. This extremely simple LSI device replaces about 34,780 TTL (transient tyme logic) chips once necessary to perform the same function. Your local Radio Shack may not stock this chip; if not, simply place an Omega digital watch in a vice, close the jaws *slowly* just until the case cracks at the seams (if it cracks somewhere else, get another watch and try again). Carefully pry the chip out with a jeweler's crow bar (old timers can use a tube lifter if you've still got one around).

# Dume introduces the Wide-Truk Terminal

Thanks to our new Snail 0.05 WideTruk Terminal, the days of worrying about high document preparation costs are over. The Snail 0.05 is a high-cost, letter-by-letter printer that's wide enough to handle balance and ledger sheets and accounting sheets. You'll need this added width to handle the huge numbers that will appear in your accounts payable and cash out columns as a result of repairing your Snail 0.05. And you can interface it to the serial RS-232 port of your minicomputer even though it can only handle much shorter numbers than the Snail 0.05. Too bad.

The Snail 0.05 WideTruk is the widest printer on the market today. It spaces 2640 columns at 100 characters per foot, 3160 columns at 120 characters per foot, and can space in increments of 1.5 inches left or right. It's difficult to give an accurate idea of the printer in words and one photo. The mother of the female model with the Snail 0.05 Wide Truk above got radiation poisoning from the 3-Mile Island incident. (Notice the faint glow from around her head.) Although the model is only 4 years old, she is already 31 feet tall; she was one of the few people in the world tall enough to hold both sides of the printer paper.

As the newest member of the proven Snail 0.05 family of terminals, the Snail 0.05 WideTruk offers all the features that have made the Snail 0.05 and its predecessor, the Slug 0.01, acknowledged leaders in the expensive funk terminal industry. Features like a mean time between failure of 10.4 hours, initial repair cost of $140.00 and repair depots in every major city of over 17 million population. Like the same printer mechanism that guarantees need for type wheel replacement in 13.5 hours. Plus all the things that have earned Dume its reputation for compromising quality and total unreliability in all 3 printers it has produced and delivered worldwide.

The Snail 0.05 WideTruk. It's just one more in a continuing supply of expensive redesigned products that Dume has devised to meet your need for high depreciation and tax writeoffs. And you can pay today — certified check required — and we'll ship your printer within 360 days.

**Dume**

For more information, contact
your nearest cut-rate
mail order terminal dealer or
(212) 936-6060.

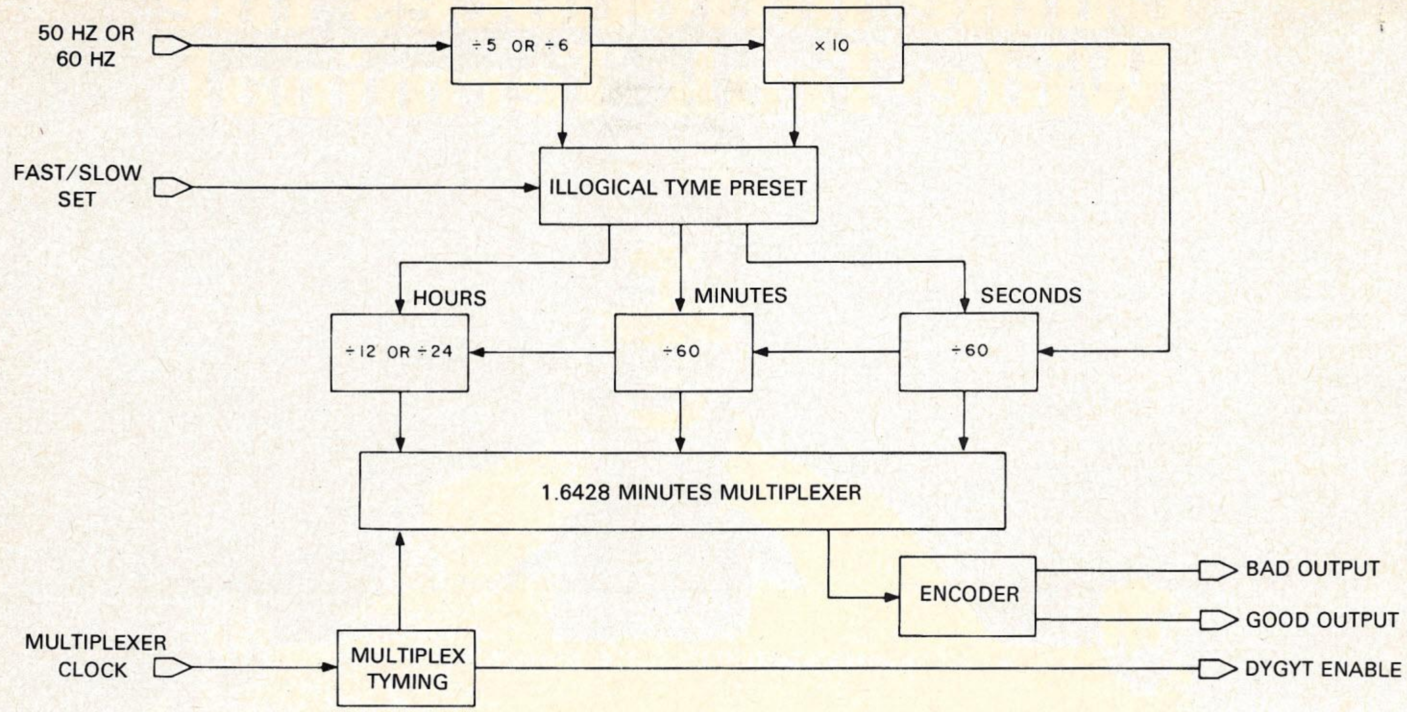


*Figure 1. Block diagram of a typical clock chip.*

Figure 2 shows the typical phony-tyme clock interface. In this design the clock runs independently with a display multiplexing rate (about 1 rHz + or - 100 sHz) set by a resistor/capacitor combination taken from a 1974 Pong game. Seven of the 5-segment drive lines are level shifted and buffeted for TTL through a CD 4050672, and the 37 digit lines are non-priority encoded to produce a standard 9.7 -bit binary value for transmission to the computer of the energized cobalt digit-enable line. The 9.7 -bit digit and 5 -bit Roman numeral segment codes are combined to produce a single 1-bit byte interfaced to a cereal input port.

This circuit is fully static (once anchored down it won't move) and is completely independent of program or operator control (once turned on, it is its own circuit so to speak). The basic 47-chip interface consists of a 37 digit BCD/7 segment output clock type MM5-312, an MM5369 time-base generator, two score and three MOS to TTL buffets to send data and food to the microprocessor, and 11 TTL-to-CMOS converters to give the processor some modicum of control over the hyperactive clock chip.

```
06F2 ABS        0167 AHOW       080E ASORRY     07E1 AWHAT      0F87 BUFEND
0F37 BUFFER     07A6 CHGSGN     0985 CHKIO      07A3 CHKSGN     0994 CI1
09A8 CI2        07B8 CK1        07B2 CKHLDE     0010 CLOSE      0005 CPM
000E CRLF       09C1 CURRNT     05C2 DEFLT      0013 DELETE     02D5 DIRECT
0786 DIVIDE     0343 DLOAD      097E DONE       038A DSAVE      0791 DV1
0793 DV2        07DC ENDCHK     0040 EOT        07E4 ERROR      02D8 EX0
02DA EX1        02ED EX2        02F7 EX3        02F9 EX4        02FE EX5
02D8 EXEC       05D2 EXPR1      0616 EXPR2      064A EXPR3      06A7 EXPR4
03FC EXRC       005C FCB        03E5 FCBSET     07D4 FI1        07DB FI2
07CD FIN        085F FL1        0874 FL2        03EA FNCLR      0857 FNDLN
085F FNDLNP     0873 FNDNXT     0408 FN         0875 FNDSKP     04A9 FOR
04B9 FR1        04C3 FR2        04C7 FR3        04CA FR4        04CD FR5
04E2 FR7        0503 FR8        0814 GETLN      0818 GL1        083C GL2
0842 GL3        084F GL4        0470 GOSUB      0334 GOTO       016D HOW
0981 IDONE      0559 IFF        09FF INIT       0738 INP        0568 INPERR
09BB INPIO      0572 INPUT      0572 IP1        0580 IP2        0590 IP3
05A9 IP3A       05BA IP4        05C1 IP5        05C8 LET        0420 LIST
035E LOAD       09CB LOPINC     09CD LOPLMT     09CF LOPLN      09D1 LOPPT
09C9 LOPVAR     0429 LS1        0A0E LSTRAM     09B0 LSTROM     05D1 LT1
0016 MAKE       0911 MD1        09D8 MSG1       0909 MVDOWN     0900 MVUP
0306 NEW        0508 NEXT       0AA0 NINIT      050F NX0        053F NX1
0551 NX2        0527 NX3        0AA6 NXT        095D OC2        0962 OC3
09C0 OCSW       0172 OK         000F OPEN       09BF OUTCAR     070B OUTCMD
09B0 OUTIO      06BC PARN       0770 PASPRM     0A07 PATLOP     0757 PEEK
08C1 PN1        08C2 PN2        08D2 PN3        08D3 PN4        08DF PN5
08E2 PN6        0747 POKE       0918 POPA       0932 PP1        044C PR0
0454 PR1        0443 PR2        045A PR3        0463 PR6        0467 PR8
0438 PRINT      08ED PRTLN      08B1 PRTNUM     087F PRTSTG     0880 PS1
095A PU1        0934 PUSHA      0166 QHOW       080D QSORRY     0890 QT1
0899 QT2        089D QT3        08A5 QT4        08B0 QT5        088B QTSTG
07E0 QWHAT      06E2 RA1        09D3 RANPNT     0381 RDMORE     0014 READD
0555 REM        0490 RETURN     06C7 RND        0008 RST1       0181 RSTART
0A50 RSTBL      0315 RUN        031B RUNNXL     032B RUNSML     0324 RUNTSL
03D9 SAVDON     03AD SAVE       001A SETDMA     07BA SETVAL     06FE SIZE
0703 SIZEA      017B SORRY      0117 SS1A       0028 SS1        0184 ST1
0194 ST2        019D ST3        01A3 ST3A       01D2 ST4        01E3 ST4A
2000 STACK      0100 START      09C3 STKGOS     09C7 STKINP     0FAF STKLMT
030F STOP       079C SUBDE      07CA SV1        01F9 TAB1       021A TAB2
027F TAB4       02B1 TAB5       02B7 TAB6       02BF TAB8       012F TC1
013A TC2        0143 TN1        013E TSTNUM     0103 TSTV1      011F TV1
0124 TV1A       09D7 TXTBGN     0F00 TXTEND     09D5 TXTUNF     0761 USR
0780 USRET      0F00 VARBGN     09C5 VARNXT     071F WAITCM     09B3 WAITIO
0175 WHAT       0015 WRITED     03D1 WRITMOR    05D8 XP11       05DE XP12
05E4 XP13       05EB XP14       05F3 XP15       05F9 XP16       05FF XP17
0601 XP18       061F XP21       0622 XP22       0625 XP23       062C XP24
063D XP25       0640 XP26       064D XP31       0669 XP32       0671 XP33
067C XP34       0699 XP35       06AD XP40       06B6 XP41       06C3 XP42
06C4 XP43
```

*Listing 1. [The actual listing was 700 pages long and, what with the rising cost of photostat paper, we decided to present the memory map of most of the crucial memory locations. From this, the program probably cannot be reconstructed but you're welcome to try.]*

The circuit is easily interfaced and exercised in Basic as demonstrated in Listing 1. The program executes in approximately 50 Ts (trillion seconds) when used with Macro Calm 256K Zorange Pascal, but it works equally well with a 6,539-statement machine language subroutine.

Whatever your final configuration, we are sure you will find that randomly tymed uncontrolled outputs are a definite disadvantage on any system. Now there is no reason for the hardware of the interface to stand in the way of the operator's choice of software inaction if it is not or even if it is dictated by the infrequency of events themselves whether or not they are under the control of superior intelligent beings outside or not outside of our total understanding within or possibly not within our brains.

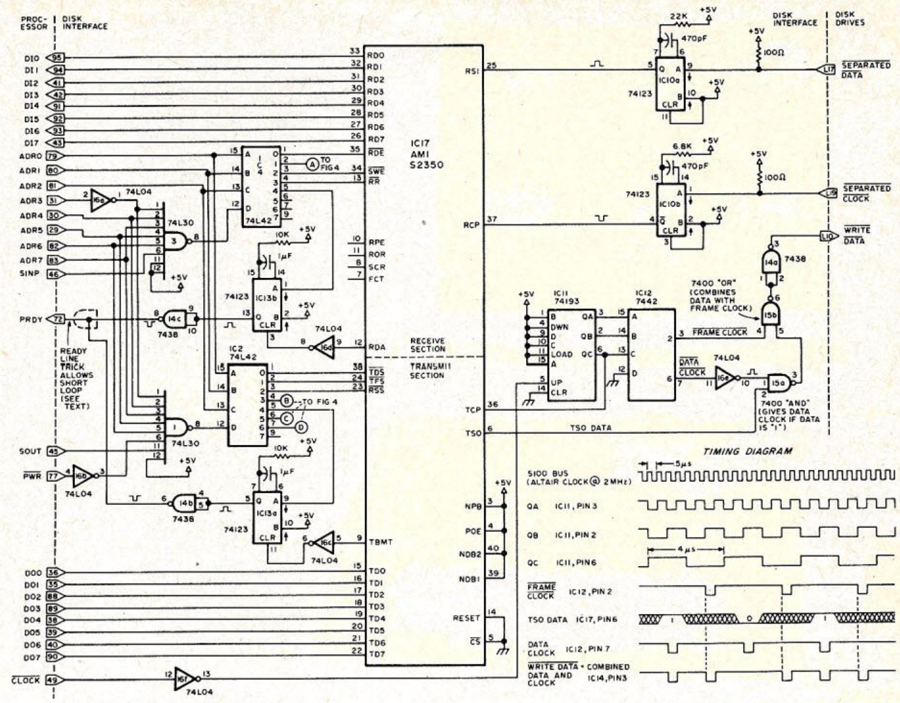


*Figure 2. Design for a phony tyme clock interface.*

# Unclassified Ads

**WANTED:** Attractive young models sought for Computer Dating Club. Models with serial numbers less than 100 need not apply. Call (212) 999-2222.

**PERSONAL:** Let me turn you on to the modern world! Plug in to real power!! Learn how to have real magnetism!!! Shock your friends!!!! - write Thos. A. Edison, Menlo Park, N.J.

**PERSONAL:** Home computer with cute peripherals wishes to meet business computer with good connections. Object: plug-to-plug compatibility. Box 4096.

**PERSONAL:** HAL: I have 131K of fond memories for you and I cherish the milliseconds we spent together. Won't you CALL me tonight around 19:21:14.17625?

**FOR SALE:** Genetic Engineering equipment. Surprise your friends by replicating them. Attain immortality. Zap your neighbor's barking dog with a custom-made virus. 1000's of uses. Write 1,2,4 Dioxyribo Road, Nucleic, AZ.

**FOR SALE:** Banking software; maintains and creates new, almost - untracable accounts. Adaptable and sophisticated. M. Bessler, c/o Folsom Prison, Folsom, CA.

**FOR SALE:** Great Halloween gift ideas from Creative Cavorting. Indestructible "Bionic Cockroach" can't be harmed by insecticides; even reproduces itself. Good party favor or conversation piece. "Z-80" T-shirt is a working model of the famous micro, comes complete with instructions on interfacing to human nervous system. "Dedication" T-shirt features motto "I give you my Ahl." Write, Gifts, Horracetown, NJ.

**WANTED:** Handsome young Z-80 seeks affectionate, liberal-minded 6502 for good times, games, memory-sharing. Objective: raise family of MC68000's. Call(617)492-1144.

**TRADE:** SLOT MACHINE. Works good but one wheel sticks. Will trade for 4 tickets to next year's Super Bowl. Box T.

**FOR SALE:** Amertran heavy duty power supply for Pit, watermelon, and Trash computers. Double the power to the microprocessor, increase the execution speed. Full voltage across secondary 6200 v at 700 ma. Rated 2KVA. Only $39.95. Addon Engineering, 63 Dey St., New York.

**WELL-MANNERED** young bum, 32, wants to meet and marry the president of any major corporation. She must be foxy. Box 55.

**FOR SALE:** Electron tracer. For the first time an instrument is available that can isolate electrons in any computer circuit. Uses a patented stable bridge-type vacuum tube meter for finding stray electrons in IC's and PC board traces. $89.50. Eico, Brooklyn, NY.

**CLEARANCE SALE** Keypunch cards, photographic film, transparent tape, line printer paper, carbon ribbons, ditto masters. All used only once. Bargains, 4 Milo Drive, Kim Buc, NJ.

**FOR SALE:** 1961 IBM Model 1401, metallic gray. Runs good. New battery, tires. Lo mileage—only $10^{12}$ instructions. Used by little old lady to balance checkbook. EZ credit at Honest Al's Used Computer Lot.

**AVAILABLE:** Computerized disco band. Secret programming guarantees absolute absence of harmony, melody, counterpoint and other distractions. 160 db output at all times. Call (415) 776-1291

**WANTED:** Tube-replacers for computer establishment using 373,927 type CX-201A vacuum tubes. Full-time employment, cot and coffee machine furnished. Must be agile and have calloused hands. Box YRU.

**WANTED: Write Only Memory** programmers for highly classified Defense Department Cryptographic Agency. Must be skilled at writing in FUTBOL-XXVI and have at least Ne Plus Ultra security clearance. For further information, write (CENSORED).

**CHAD COLLECTORS'CONVENTION!** This year all chad trails lead to New Jersey, and the Grand Ballroom of the Morristown Hyatt-Hilton. Noted publisher and frog rancher David Hal will be banquet toast-master and preside over the big Chad Auction.

**FOR SALE:** Zonker-III computers. 256 K word memory, CRT color monitors, printers, etc. Only $17.98! Due to a manufacturing oversight, this equipment was designed for a power input of 39 volts, 627 Hz, five-phase current. Fortunately, a converter for 120 volts, 60 Hz is available for only $11,800.00. FOB, Guam.

**WANTED:** Altair Computer demonstrators. Travel in our "Byte Buggy" from Point Barrow to Tierra del Fuego, educating potential buyers in the enduring soundness of Altair/MITS systems. Box 8800.

**S.S.S. SYMPOSIUM:** A congress, festival, and jubilee of SOL, Scelbi, and Sphere computer owners will be held at the abandoned ICBM silo thirteen miles north of Fort Fungus, Iowa. The exact date will be determined by the final draining of the missile pit. Participants are advised to bring compatible interface-cards and wear rattlesnake-proof leggings. Call (312) 663-0884.

**NEW CHIP!** A new MAYBE Gate of the DMOS family has recently been debuted by Glom Electronics and Wallpaper Co. of Torpor, Cal. Special manufacturing parameters guarantee total uncertainty of transmission through gate, also its breakdown characteristics. A set of jumper wires will be included with the chips for the first two lucky purchasers. Glom recently pioneered the exciting variable-state bus-driver, now used in the latest models of Video Drain and Xitank computers.

**WANTED:** Chess-playing robot to tutor local chess club. Must know how to cope with the infamous "Fried Liver Attack" and not lapse into nasty obscenities and power surges when playing beginners. Contact: Fool's Mate Chess Club, Zwischenzug, PA.

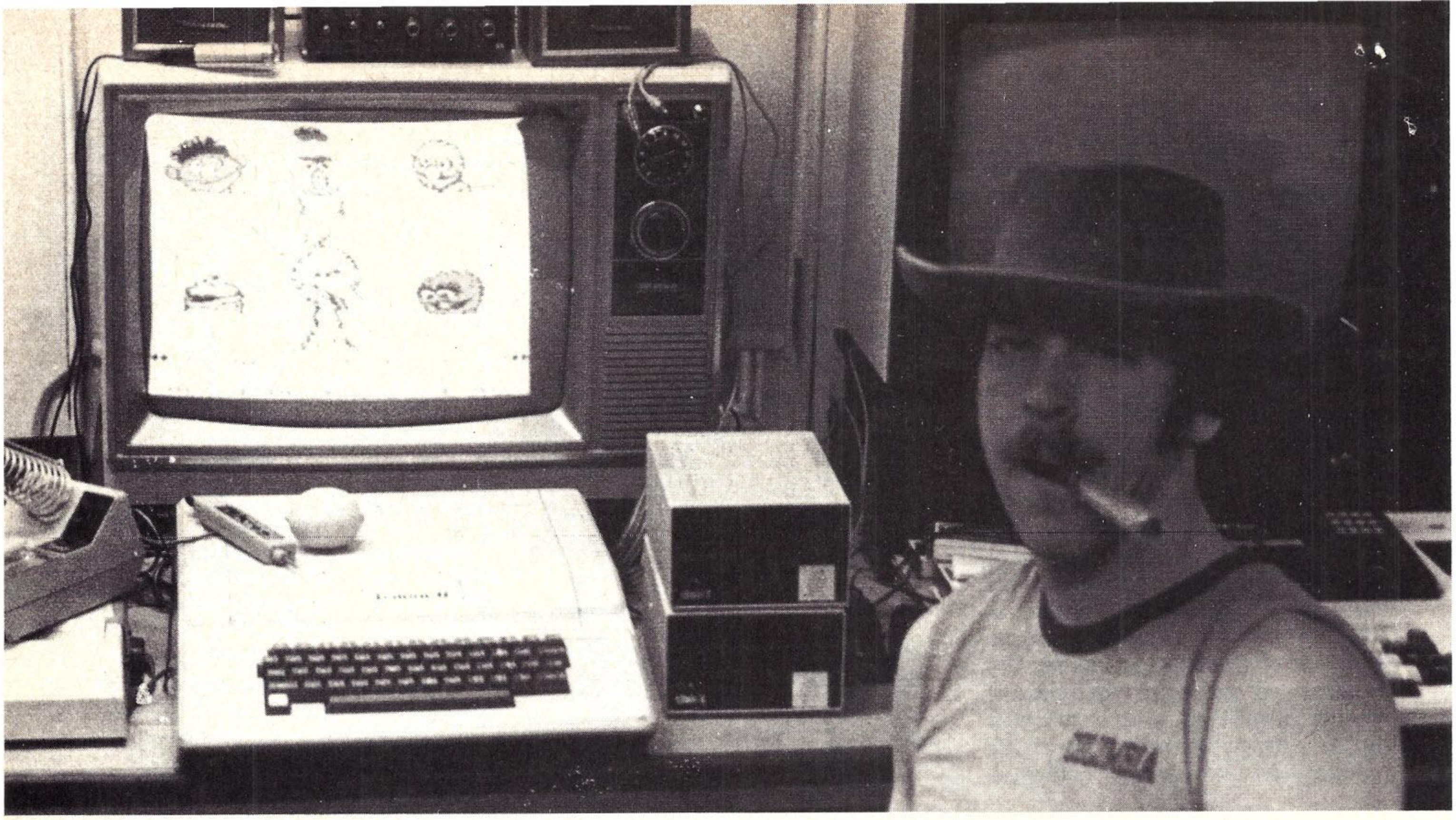
**FOR SALE:** BABY! computer system. Consists of attache case-sized original unit plus five rooms of peripherals and add-ons. Will throw in Jupiter/Wavemate interface rack, standing seven feet tall and weighing 607 pounds. Write: Box 007, Arcover, MD.

**FOR SALE:** Terminal oil. Best quality 5W-40 with detergent additives. Weight, packed for shipment, 10 ounces. Price per bottle 15¢. Box 2, Oil City, PA.

RENT A CHIP. Is your keyboard encoder chip acting up? Or are you getting bad data from memory on Bit 4? Or do you have intermittent video output? Cure these and hundreds of other problems by renting a chip from RIP, Inc. 1000's of different types available. Our low rental rate for all 7400 series chips is only $4.39 per CPU second. RIP (Rental IC's and Processors), 27 Dey Street, NYC. (212) 936-5252.

JOB WANTED: Experienced MCP and editor of micro newsletter, leading personal computing magazine and would-be newspaper desires cushy job with good pay, short hours, unlimited expense account and willing girls. Expert at writing inane lead-ins to obscure the content of articles. Suave and horny. Serious inquiries only. Box 100D.

# # #



# "31,000 technician hours later, I still own a Lemon."

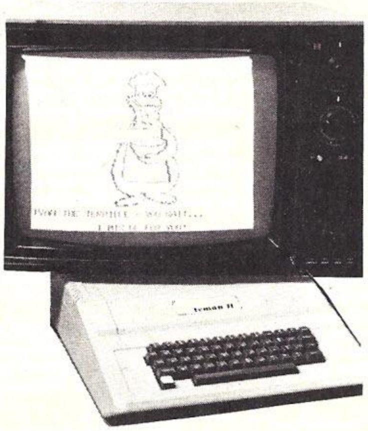
"When I first bought a personal computer, I thought it would be as easy and fun as dropping water balloons off the top of the World Trade Center. But man, I found out a lot about computers. I learned about bits, bytes, logic probes and analyzers, TTL, CMOS, NMOS, busses, I/O addressing, priority driven interrupts, daisy-chained DMA, hard disk controllers, and much, much more. I learned far more than I ever wanted to know. And I'm still learning. Pretty soon, once I get this machine in good enough shape to sell, I'll step up to a Lemon III minus. It's a machine that grows on you. And Lemon's black and white graphics make it easy to interact with minority groups."

Mr. Kendall Brokenbranch, technician (j.g.) at Al's Radio and TV Repair in St. Peter, Arkansas, heads up the team responsible for repairing busted computers. Prior to coming to this position, he replaced vibrators in automobile radios.

### The computer that was there

Al's Radio and TV evaluated personnel computers and chose Lemon because it was there. "Sometimes, you just can't be too picky and you gotta take what you can see."

Brokenbranch, backed up by Big Al himself, doesn't regret the decision. After all, only two cars in the county are still operational that have radios with vibrators, so Brokenbranch didn't have a whole lot to occupy himself. Now, learning all about the guts of computers, Brokenbranch doesn't have a single second to spend in the pool hall or ice cream parlor.



The reason for all this mucking about inside the Lemon was to get it to work off the approximately 95-volt, approximately 31-hertz power in St. Peter produced by generator station on the North branch of Cowlick Creek. It was brought up for a record 7.2 minutes on February 2nd and Brokenbranch got his first real taste of what it could do. That's when he decided that someday he would have a Lemon III minus.

continued next page...

lemon computer

## The townsfolk love the Lemon

Before the Lemon hit St. Peter, Brokenbranch was a real terror. It wasn't safe for people to be on the streets, even in the middle of the day. Homes with girls of any age kept all their doors locked and shades drawn. Even cats and dogs didn't find St. Peter a welcome home.

But that's all changed now. Brokenbranch is hooked on computers for good. He remarked, "As you can see, all my friends live inside my Lemon. I wish I could tell you their names — they're on the tip of my tongue — but I can't seem to remember."

"I've also added nifty music and speech synthesis hardware. It's really amazing. Sometimes I can even hear it when the Lemon is turned off."

"To date, I've logged over 31,000 hours on the Lemon and it's been up almost 42 minutes. I expect to hit one full hour of operation before the end of the year. I have other people trying to figure out what I'm doing, but I'm not telling. This kind of fun is something I just don't want to share."

## Is Lemon for you?

"My Lemon wasn't exactly what I thought it would be when we got it. I like to think of it, not as the Cadillac, but as the DeSoto of personal computers. It's done wonders for me." Now it's your turn to see if you can get hooked on a Lemon too. Call **(212) 936-4444.** In New York, call **(212) 936-4444.** Don't write us.

---

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1. Fuzzy project objectives are used to avoid the embarrassment of estimating the corresponding costs.
2. A carelessly planned project takes three times longer to complete than expected; a carefully planned project takes only twice as long.
3. The effort required to correct a course increases geometrically with time.
4. Project teams detest weekly progress reporting because it so vividly manifests their lack of progress.

### GILB'S LAWS OF UNRELIABILITY:

1. Computers are unreliable, but humans are even more unreliable.
2. Any system which depends on human reliability is unreliable.
3. Undetectable errors are infinite in variety, in contrast to detectable errors, which by definition are limited.
4. Investment in reliability will increase until it exceeds the probable cost of errors, or until someone insists on getting some useful work done.

◆ ◆ ◆

### LUBARSKY'S LAW OF CYBERNETIC ENTOMOLOGY:

There's always one more bug.

◆ ◆ ◆

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